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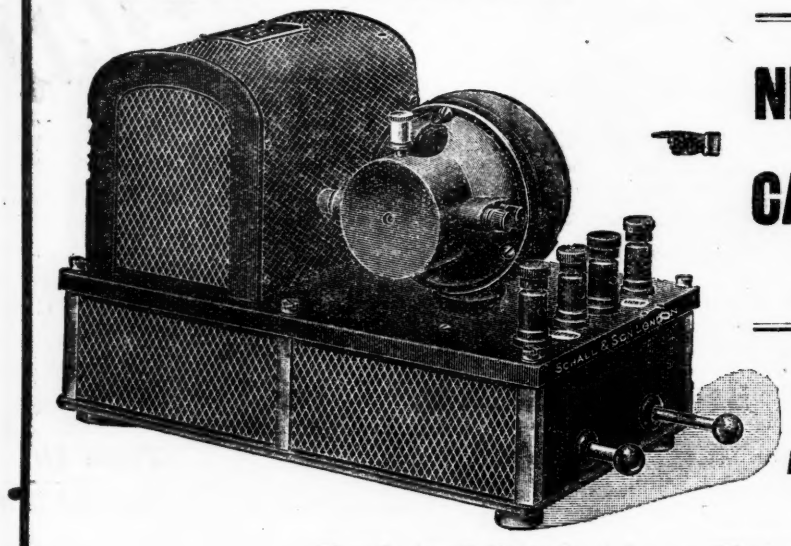

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EMERITUS PHYSICIAN, ST. GEORGE'S HOSPITAL; PRESIDENT OF THE ROYAL SOCIETY OF MEDICINE.

By referred symptoms is meant those that do not at once suggest local disease of the organ really responsible or that are remote in point of place; they might be described as masked or, as they are often the first manifestations of disease, inaugural, or as larval or *fruste*.

The discussion of this subject has its difficulties; to consider separately the gall bladder and the referred symptoms caused by its disease and then appendicitis and its referred symptoms might be the simplest course; but as this would lead to some tedious repetition it appears advisable to take the symptoms and to refer incidentally to their causation. Most of the infective complications of gall bladder and appendix disease, such as the various forms of hepatic suppuration, empyema and fistulae, and intestinal obstruction due to adhesions, bands or gall stones, will not be mentioned. Except when specially stated, the disease of the gall bladder and appendix is not acute but either the result of a past attack of acute inflammation, such as fibrosis, adhesions or calculi, or a recurrent or chronic inflammation. Further, it may be pointed out that what we commonly call a "chronic appendix" is more often the result of a past attack than a progressive and chronic inflammatory process.

Mechanism of the Production of Symptoms.

The question how morbid changes in the gall bladder and appendix induce symptoms in other viscera and distant parts will be touched on in connexion with these manifestations, but the various mechanisms that may be at work in different cases may be tabulated here as (1) Reflex, (2) Mechanical, (3) Toxic, (4) Infective.

1. *Reflex.*—Irritation in the appendix or gall bladder may cause hypertonus of the stomach and spasm of, or failure to relax on the part of, the pyloric or ileo-caecal sphincter, leading to gastric or ileal stasis and so to excess of acid or to toxaemia. Vigorous contraction of the stomach extending to the pylorus has been watched by Moynihan, during the course of laparotomy on patients with appendix dyspepsia, and Hurst[9] has seen visible spasm of the middle of the stomach when the appendix is manipulated under the *x*-rays. The pyloric spasm or want of relaxation of the pylorus has been regarded as a protective mechanism. In the case of chronic appendicitis failure of relaxation of the ileo-caecal sphincter is thought by Hurst to be commoner than spasm. Caecal stasis from inhibition of peristalsis or from enterospasm (spastic constipation) may be due to chronic appendicitis; when situated in the pelvis a chronically inflamed appendix may reflexly inhibit defaecation (dyschezia, Hurst[10]). Appendicitis may reflexly lead to increased frequency or inhibition of micturition through an irritated focus in the spinal cord (Mackenzie); and chronic irritation of the appendix may be responsible for cardiac irregularities.

The reflex pain in the epigastrium, which is so common in appendix and gall-bladder dyspepsia, has given rise to some discussion; Mackenzie maintains that it is in the peripheral terminations of the sixth and seventh dorsal nerves in the abdominal wall, and that this depends on the irritated focus in the spinal cord, whereas Hurst[11] argues that the pain is visceral, in the pyloric end of the stomach, and due to the peristalsis. They both, however, agree that the epigastric tenderness is due, not to pressure on the stomach, but to the irritated focus in the spinal cord which causes an exaggerated sensory effect when the skin, and especially the muscles and the underlying subperitoneal tissues, are pressed on. The referred cutaneous pain in gall-bladder disease may occasionally spread to the top of the right shoulder, and extend down the outside of the arm, so that patients may for years be treated for "neuritis" until the passage of a gall stone at once brings relief (Mackenzie).

Very often the appendix when removed shows little naked-eye change to correspond with the prominent symptoms that then disappear; microscopic examination may be necessary to reveal the evidence of past inflammation in its walls, especially fibrosis in the submucous coat, and often, as I have seen in many sections, the changes are very slight. The ganglion cells of Auerbach and Meissner's plexuses have been found to show degeneration (Pfeiffer). Stimuli generated in the appendix travel by the sympathetic to the spinal cord, and by constant repetition give rise to a persistent irritable focus in the spinal cord, and so to a reflex extension of impulses. In women the right ovary and tube are very often matted together with the appendix, infection readily passing from one to the other. Ovarian and uterine dyspepsia, analogous to those now under consideration, have been described.

2. *Mechanical.*—Pericholecystitic adhesions may embarrass the movements of the stomach, interfere with the passage of food through the pylorus, or even lead to an hour-glass stomach. Though often the legacy left by cholecystitis, these adhesions may be due to duodenal or gastric ulcer. Peri-appendicular adhesions may cause intestinal stasis and so toxaemia, and the same result, only in a more marked degree, may be produced by an appendix adherent across the lower part of the ileum. In some cases adhesions about the appendix or the gall bladder may possibly alter the radiation of pain; adhesions around an inflamed gall bladder have been thought to cause left-sided pain, and adhesions between an inflamed gall bladder and the peritoneal coat of the appendix to explain the pain referred to the right iliac fossa (Tripier and Paviot).

3. *Toxic.*—Absorption of bacterial toxins from the gall bladder or appendix may set up general toxaemia, cause myocarditis, and damage the mucous membrane of the stomach and intestines, thus giving rise to haemorrhage. Toxic absorption from the inside of the organ is probably more often an important factor in the case of the gall bladder than of the appendix.

4. *Infective.*—Micro-organisms from the appendix or gall bladder may infect the kidneys, especially the right. Infection of the gall bladder is prone to spread to the pancreas, and local thrombo-phlebitis of branches of the iliac veins, secondary to appendicitis, may give rise to small pulmonary emboli and pleurisy; malignant endocarditis has been found to be associated with gall-bladder infection (Leva collected nine cases as long ago as 1892) and with appendicitis. As is well known, inflammation of the appendix and gall bladder are often associated; although the true relations of the two infections may vary, it seems probable that most commonly the appendix is the earlier affected and that from this focus the gall bladder becomes infected. The changes left in the appendix may be comparatively slight while there is considerable cholecystitis.

Dyspepsia.

The general recognition that disease of these two appendages of the alimentary canal may produce definite symptoms of gastric and duodenal disorder with few or no localizing symptoms is comparatively recent and is due to the observations on "the pathology of the living" (W. J. Mayo, Moynihan, Paterson, S. Fenwick); though had abdominal surgery been active in his time there can be little doubt that John Hilton would have expanded his conclusions on "sympathetic pains on the surface of the body connected with derangements of the internal viscera," and would have laid stress on the connexion between reflection of pain from the gall bladder to the stomach and duodenum on the one hand and the origin of the hepatic diverticulum from the foregut on the other.

As the dyspeptic symptoms in a certain number of cases depend on an organic lesion, resist symptomatic treatment, but yield to operative interference, the term "surgical dyspepsia" has arisen.

This attractive explanation, however, must not lead to the conclusion that dyspepsia is always, or, indeed, usually, due to an organic cause, and that the short cut to a cure is by way of the knife. A high estimate, at least for a physician, is that of M. J. Lichty, among whose 1,500 patients with gastro-intestinal disorders 600, or 40 per cent., were found at operation to have disease of the gall

bladder or appendix. It is, moreover, important to consider how far medicine can re-assert its position by in its turn preventing infection of the gall bladder and appendix. With regard to the gall bladder we know that cholecystitis is due to various foci of infection: from the vermiform appendix, from the intestines, particularly in enteric fever, from the stomach and teeth, and from the tonsils by the blood stream; for Rosenow and Brown have shown the great frequency of haemolytic streptococci in inflamed gall bladders, argue that *B. coli*, formerly considered as one of the two commonest causal organisms of cholecystitis, is often a secondary invader, and from experimental observation believe that these streptococci in the tonsils have a special tendency to settle down in the gall bladder. The etiology of appendicitis has been much debated; probably several causes are at work; but the elimination of septic foci in the mouth, tonsils, and nasopharynx, the supervision of food supplies, and early attention to signs of intestinal infection and constipation would diminish the frequency of this surgical disease. In connexion with the prevention of tonsillitis it is appropriate to refer here to Dr. G. I. T. Stewart's observations showing the causal relation of bad teeth to inflammation of the tonsils.

Gall-bladder dyspepsia is sometimes spoken of as the result of gall stones rather to the exclusion of cholecystitis, whereas a broader view holds the field as regards appendix dyspepsia, which is ascribed to appendicitis, and not solely to the faecal concretions. The correct view is that in the main the cholecystitis causes both the symptoms and the gall stones. It is of course true that single cholesterin calculi may form without any antecedent inflammation of the gall bladder, though they may subsequently favour the occurrence of cholecystitis. These calculi are much less common than those due to cholecystitis, and, I believe, may form an exception to Sir Berkeley Moynihan's dictum that gall stones always cause symptoms.

The evidence that referred dyspepsia is due to disease of the appendix or gall bladder rests on the disappearance of the symptoms after removal of a chronic inflamed appendix or gall bladder, and is analogous to the familiar relief of headache by removal of a decayed tooth. Cases not relieved by gastro-enterostomy have subsequently been cured by appendicectomy, and it has been urged that no laparotomy for disease of the stomach or duodenum, especially if no obvious disease in these organs be found, is complete without examination of the gall bladder and appendix. It was noted by Soltau Fenwick that patients with a peculiar form of gastric hypersecretion were prone to die from appendicitis, the real explanation apparently being that the hypersecretion was due to latent appendicitis which subsequently flared up. The diagnosis of gall bladder or appendix disease as the cause of dyspepsia in a given case may be very difficult; in both instances the primary lesion may be latent, there may be an absence of any history of an acute abdominal attack, and there may be no local tenderness over the gall bladder or appendix.

The dyspeptic symptoms associated with chronic disease of the gall bladder and appendix, which are commoner in women, show considerable variation, and it is very doubtful if any differential diagnosis as to which organ is primarily at fault can be made on the characters of the subjective manifestations only. Pain and tenderness on pressure in the epigastrium and flatulence are the most constant symptoms; the pain may be persistent, but is often at once made worse by food; or it may come on after an interval of hours, as in duodenal ulcer; possibly the pain directly after a meal in cases of cholecystitis or gall stones may be caused by vigorous contractions in the gall bladder as well as in the stomach. Heartburn is common, and vomiting may follow. The symptoms are often of long duration, and their obstinate resistance to remedies, such as bismuth, alkalis and food, that relieve ordinary indigestion, is a prominent feature. The prolonged pain and toxaemia, especially in cases with appendicitic adhesions, may induce neurasthenia and recurrent headaches. The condition of the gastric juice varies; there may be hyperchlorhydria, a normal or a much diminished amount of hydrochloric acid. Among 156 cases of gall-bladder disease, J. A. Lichty found that 84, or 54 per cent., showed hyperchlorhydria; 41, or 26 per cent., a normal; and 31, or 20 per cent., a diminished amount of HCl. Among Sherren's 20 cases of gall-bladder disease there was an absence of free HCl in 16.

There is a similar variation in appendix dyspepsia, and Fenwick considers that the condition of the appendix is an important determining factor; when there is active irritation, such as an enterolith or ulceration, hyperchlorhydria results, whereas with a merely thickened, adherent, or kinked appendix the symptoms are those of chronic gastritis with diminution or absence of HCl. He regards the hypersecretion as reflex, but there is the alternative view that spasm, or failure to relax on the part, of the pylorus leads to retention of food and accumulation of HCl. In a comparatively small number of cases there is haematemesis, which may be considerable and suggest gastric or duodenal ulcer. In my limited experience this has seemed less rare in appendix than in gall-bladder dyspepsia, but in a large series of cases operated upon in the Mayo clinic gastric haemorrhage and symptoms were present in 5 per cent. of gall-bladder infections and in 2 per cent. of appendicitis cases (Crispin). It is tempting to regard the haemorrhage as due to toxaemia, but the source of the poison is not always obvious, as the appendix may be merely obliterated. It is true that Paterson and others ascribe the symptoms of appendix dyspepsia to toxaemia due to intestinal stasis, and on this hypothesis an exacerbation in the intestinal toxaemia might be postulated as the exciting cause of haematemesis. But considerable gastro-intestinal haemorrhage is rare in acute appendicitis in which the toxaemia is so much more obvious. It is somewhat fanciful to imagine that there is sufficient reflex dilatation of the vessels in the gastric mucosa to produce weeping, but this is perhaps suggested by the peritoneal flush over the pylorus in these cases of appendix dyspepsia. Soltau Fenwick's explanation of gastric haemorrhage is probably more satisfactory—namely, that as a result of long-continued exposure to gastric juice with two to five times the normal percentage of free hydrochloric acid the gastric mucous membrane becomes inflamed, acutely congested, and shows haemorrhagic erosions. In some instances a gastric or duodenal ulcer is associated with appendicitis or gall-bladder disease. Among 1,078 cases of gastric and duodenal ulcer at the Mayo clinic 40 per cent. showed disease of the appendix and 9.7 per cent. disease of the gall bladder (Eusterman). These figures perhaps explain my impression that haematemesis is less rare in appendix than in gall-bladder dyspepsia. In rare cases gastro-intestinal haemorrhage may be due to ulceration of the gall bladder or of the ampulla of Vater when a gall stone is impacted there, but in the latter instance the symptoms would be those of intermittent hepatic fever.

Diagnosis.

The differential diagnosis of appendix and gall-bladder dyspepsia from gastric and duodenal ulcer presents considerable difficulties, but an *x*-ray bismuth or barium meal may give valuable assistance in providing the positive evidence of gastric or duodenal ulcer on the one hand, or of appendix or gall-bladder disease on the other. Hurst[9] has tabulated the *x*-ray results in favour of the presence of a chronic lesion of the appendix, and points out that the tenderness of the appendix—the most important sign—may be missed without the guidance of *x*-rays, as the organ may be displaced when pressure is applied; other signs are those of adhesions, ileal and caecal stasis, and though hypertonus of the stomach, which empties itself with abnormal rapidity, may be present, this is both much less frequent and less well marked than in duodenal ulcer, the spasm due to chronic appendicitis being more commonly in the middle of the stomach. From careful examination of a large number of cases Spriggs finds that the following indications of chronic disease—namely, partial filling of and stasis of barium in the appendix, constrictions, dilatations, and concretions—can be demonstrated by the *x*-rays. Adhesions around the gall bladder are characterized by a high position of the stomach, displacement of the pylorus to the right, distortion of the duodenal cap and of the hepatic flexure of the colon, and retention of food in the stomach for six to eight hours. Opinion differs as to the value of *x*-rays in the detection of gall stones; some American skiagraphists claim that 75 per cent. of gall stones can be thus diagnosed, and Pancoast and Pfahler regard 50 per cent. as a conservative estimate.

Turning to the other means of diagnosis, the pain of gastric ulcer is relieved by food and by alkalis, and in

duodenal ulcer there are usually periods of complete freedom from symptoms and hyperchlorhydria; in both these conditions occult blood in the faeces is much more likely to be present than it is in the referred dyspepsias. In favour of an appendicular origin are radiation of pain towards the right iliac fossa, with local tenderness there or on rectal examination, and Bastedo's sign—namely, localized pain and tenderness on pressure in the right iliac fossa on inflation of the colon. Deep tenderness to the right of the spine between the seventh and eleventh ribs is regarded as pathognomonic of pericholecystitic adhesions by Friedman, who considers it more valuable than *x*-rays. The tenderness has been ascribed to extension of inflammation to the chest wall so as to set up a mild neuritis.

It must of course be borne in mind that both the appendix and the gall bladder may be diseased, and that removal of one may not cure the symptoms. A few words may be said about the way in which disease of the gall bladder and appendix may imitate each other. An elongated gall bladder with a Riedel's lobe or peritoneal adhesions between the two organs may explain why in some cases of cholecystitis a diagnosis of appendicitis is corrected only at laparotomy. The converse mistake is less common, but may be due to an appendicitis close to the right lobe of the liver so that it becomes adherent to the gall bladder, or to other less obvious causes. In this connexion the following case is interesting.

A man aged 32 years had jaundice when 14 years of age, and since then had had repeated attacks of jaundice, much flatulence, and general ill health. Two months before I saw him he had had an acute abdominal attack regarded as appendicitis, and was much jaundiced. When seen there was tenderness over the gall bladder, and there was nothing palpable or any tenderness on the right side per rectum. The pre-operative diagnosis was recurrent cholecystitis, but the gall bladder was found to be perfectly normal, and there was a tense mucocele of the appendix. He then completely recovered, went through the war, and was reputed to be well in December, 1919. Possibly the attacks of jaundice were due to disturbance of Meltzer's law of contrary innervation. The sphincter at the lower end of the common bile duct and the muscular fibres of the gall bladder are antagonistic; when the gall bladder contracts the sphincter relaxes; if from reflex disturbance the sphincter fails to relax during contraction of the gall bladder, the pressure of bile in the ducts will rise, and jaundice, and even colic, will result.

Chronic Colitis.

Chronic colitis with exhausting diarrhoea is occasionally due to continued infection from the gall bladder or appendicitis. This diarrhoea and serious wasting may occur without any localizing symptoms, and with little in the history to suggest the responsible focus. Martin reported one of the first cases of this kind in a man without any signs pointing to appendicitis; exploratory laparotomy showed a thickened appendix with a dilated cavity communicating with the caecum; the appendix contained one or two enteroliths and extremely foul-smelling material, resembling in this respect the motions. Frequent bulky offensive motions with excess of fat occur in chronic pancreatitis, which may result from gall-bladder infection, or from a stone in the common duct.

Glycosuria and Diabetes.

It is now recognized that glycosuria or diabetes, if, indeed, any real distinction between them should be drawn, may be due to pancreatitis set up by infection associated with gall stones. It is not a common sequel, and, though a calculus may get into the common bile duct without obvious symptoms, it must be very rare for gall stones to cause diabetes when their presence is entirely unsuspected. The surgical treatment of certain cases of diabetes practised by Sir A. W. Mayo-Robson is an illustration of preventive surgery, as it aims at the removal of the cause before the resulting pancreatitis has reached an extreme stage.

Cardiac Symptoms.

The dyspepsia due to appendix or gall-bladder disease may be associated with palpitation, irregularity, and substernal distress. M. J. Lichty found that in appendix cases the cardiac disturbance was usually functional only, whereas in gall-bladder disease, either alone or combined with appendicitis, the resulting cardiac disease was more serious. Absorption of toxins from an inflamed gall bladder or ducts may cause myocarditis, anginoid symptoms, and cardiac failure. In a paper on chronic cholecystitis as a cause of myocardial incompetence, Babcock records thirteen cases, medical advice being sought, with two exceptions in which biliary colic occurred, for cardiac disorder without any suspicion of gall-bladder trouble. Angina or anginoid symptoms in patients with gall bladder disease may be due to exhaustion of the poisoned myocardium; a specially interesting case, as it raises the question of Graves's disease as a result of gall-bladder infection, is reported by Sears: a woman had intense precordial pain spreading to the left shoulder, a raised pulse rate, an enlarged thyroid, and other symptoms suggesting Graves's disease; an attack of biliary colic led to operative removal of two gall stones and disappearance of all the symptoms. Babcock described a group of his cases in which attacks of angina preceded cardiac failure. The pain of biliary colic sometimes imitates angina, and cases in which attacks of angina have cleared off after frank biliary colic are on record; it has been suggested that as the result of adhesions the pain of biliary colic may be felt on the left side. The symptoms of existing valvular disease may be intensified; or compensation may be broken down by toxic myocarditis due to gall-bladder infection. It is important to remember this, and also that the cardiac weakness is often entirely due to the gall-bladder disease, and will be cured by surgical treatment; for operation may be considered to be contraindicated by the condition of the heart. Janeway spoke hopefully of operation in these cases if performed under a local and not a general anaesthetic, the danger being more often from post-anaesthetic pulmonary complications. By waiting time may be lost without improvement in the cardiac condition; but in one case of this kind a vaccine made from organisms isolated from the faeces appeared to do good.

Pyelitis and Pyelonephritis.

Pyelitis and pyelonephritis may be due to infection with *B. coli*, either from the gall bladder or from the appendix; as far as I know, this usually occurs in the right kidney and then suggests a local extension of infection. I have seen right-sided pyelitis in a patient with chronic gall-bladder disease and from the comparative severity of the symptoms suggest acute cholecystitis; the difficulty in such cases is to be sure that both conditions are not present. By becoming adherent to the right ureter an inflamed appendix may cause pyelitis and the aspect of the case may be chiefly renal, and from the free haemorrhage even suggest a calculus; cases of this kind, usually after acute appendicitis, have been described by Hunner. I have been told of a case in which the appendix perforated into the ureter. An inflamed appendix situated high up and close to the kidney may possibly infect the pelvis of the organ.

Synovitis and Arthritis.

In common with other infective conditions of the stomach and intestines, appendicitis and cholecystitis very seldom give rise to a chronic or subacute arthritis such as is associated with oral sepsis. Dysentery is the disease in which the most extensive destruction of mucous membrane and opportunities for absorption occur, and yet synovitis is neither common nor, as a rule, severe. Arthritis in enteric fever is somewhat rare, and might be explained as the result of the early septicaemic stage. It seems plausible to suggest that the liver may protect the joints from damage due to intestinal infections. This hypothesis would naturally at once raise the objection that oral sepsis is an, if not the most, important cause of arthritis, and probably acts by infecting the stomach. On this point I would urge that the discharge of pus from the gums into the mouth, though a frequent cause of gastritis, is not so effective in producing arthritis as infection at the roots causing absorption into the blood stream. In rare instances appendicitis, usually acute, is associated with synovitis; this at first gave rise to the view that inflammation of the appendix, like that of the tonsil, both of which are rich in lymphoid tissue, was rheumatic in origin. But some years ago Poynton in discussing the association of

appendicitis with arthritis came to the conclusion that the articular affection was probably secondary to the appendicitis.

REFERENCES.

[1] Babcock, *Trans. Assoc. Amer. Phys.*, Phila., 1909, xxiv, 43. [2] Brown, *Arch. Int. Med.*, Chicago, 1919, xxiii, 185. [3] Crispin, *Collected Papers of the Mayo Clinic*, 1916, viii, 88. [4] Eusterman, Ibid., 1915, vii, 183. [5] S. Fenwick, *Lancet*, London, 1910, i, 706. [6] Friedman, *New York Med. Journ.*, 1918, cvii, 341. [7] Hilton, *Rest and Pain*, 74, 1863. [8] Hunner, *Journ. Amer. Med. Assoc.*, Chicago, 1908, l, 1328. [9] Hurst, *Arch. Röntgen Ray*, London, 1914–5, xix, 249. [10] Idem, *Constipation and Allied Disorders*, London, 162, 1919. [11] Idem, *Sensibility of the Alimentary Canal*, London, 43 et seq., 1911. [12] Janeway, *Trans. Assoc. Amer. Phys.*, Phila., 1909, xxiv, 69. [13] Leva, *Deut. med. Woch.*, 1892, xvii, 228. [14] J. A. Lichty, *Amer. Journ. Med. Sci.*, Phila., 1911, cxli, 72. [15] M. J. Lichty, *Ohio Med. Journ.*, Columbus, 1915, xi, 779. [16] J. Mackenzie, *Symptoms and their Interpretation*, 1909, 67. [17] S. Martin, *Med.-Chir. Trans.*, London, 1901, lxxxiv, 197. [18] W. J. Mayo, quoted by Paterson, vide infra. [19] S. J. Meltzer, *Amer. Journ. Med. Sci.*, Phila., 1917, cliii, 469. [20] Moynihan, BRITISH MEDICAL JOURNAL, 1908, ii, 1597 (Gall stones); 1910, i, 241 (Appendicitis); and 1919, ii, 765. [21] Pancoast, *Trans. Coll. Phys.*, Phila., 1917, xxxix, 257. [22] H. J. Paterson, *Lancet*, London, 1910, i, 708. [23] Pfahler, *Journ. Amer. Med. Assoc.*, Chicago, 1918, lxxi, 1951. [24] D. B. Pfeiffer, *Ann. Surg.*, 1915, lxi, 438. [25] A. W. M. Robson, BRITISH MEDICAL JOURNAL, 1910, i, 973. [26] Rosenow, *Journ. Amer. Med. Assoc.*, Chicago, 1914, lviii, 908. [27] Sears, *Boston Med. and Surg. Journ.*, 1913, clxix, 866. [28] Sherren, *Practitioner*, London, 1913, xc, 522. [29] E. I. Spriggs, *Lancet*, London, 1919, i, 98. [30] G. I. Stewart, *Lancet*, London, 1909, i, 1822. [31] Tripier et Pavioe, *Semaine méd.*, Paris, 1903, xxiii, 29.

The Lettsomian Lectures

ON

TUMOURS COMPLICATING PREGNANCY, LABOUR, AND THE PUERPERIUM.

DELIVERED BEFORE THE MEDICAL SOCIETY OF LONDON,

BY

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(Abstract.)

LECTURE III.—CANCER OF THE UTERUS COMPLICATING PREGNANCY, LABOUR, AND THE PUERPERIUM.*

THE lecturer presented two tables, reproduced on page 323, giving brief particulars of the ten cases of cancer of the cervix complicating pregnancy, labour, and the puerperium which he had had under his care at University College Hospital. He had not met with a case in private practice. He related the details in each case, but it appears sufficient here to reproduce those with regard to the three cases, observed in advanced pregnancy, in which the patients, after high amputation of the cervix, survived for twenty-five, twenty-two, and nineteen years respectively.

Patient Alive 25 Years after Operation.

E. W. (Table F, No. 1), aged 33 (children 4, abortion 1) was delivered on March 25th, 1893, by forceps through a cancerous cervix, of a full-term living child, which died of whooping-cough when 11 months old. The labour was slow. The patient had had a discharge of blood for eight months. There was no *post-partum* haemorrhage.

On April 8th, 1893, high amputation was performed with the Paquelin cautery (see Figs. 1 and 2). On June 6th, 1894, she became pregnant in the body, which had been left behind. On March 6th, 1895, I delivered her by Caesarean section, terminated as a Porro's operation, with extra-peritoneal treatment of the stump. This child grew up and served as a soldier in the great war, 1914–18. In 1918, twenty-five years after the high amputation, the mother was examined by me and found to be in excellent health.

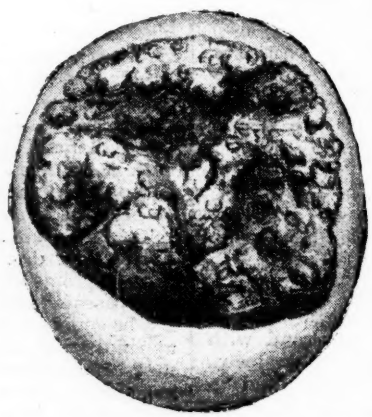

FIG. 1.—Case 1, Table F. Cervix just before the operation. From a drawing by the author. (Natural size.) *Obstet. Soc. Trans.*, xlvi.

Patient Alive 22 Years after Operation.

A. C. (Table F, No. 2), aged 35 (children 8, abortion 0), was admitted to University College Hospital on January 3rd, 1896, when seven months pregnant. She had had haemorrhage on coitus for seven months, and a thin, watery offensive blood-stained discharge for six months. There was a large cancerous growth on the posterior lip and left side of the cervix. Labour was induced by de Ribes's bag; the child (3 lb. 7 oz.) lived only thirty-eight minutes.

On January 28th, 1896, I removed the cervix by the high amputation with the Paquelin cautery (see Figs. 3 and 4).

I have seen this patient many times since the operation. I examined her in 1918, twenty-two years after the operation, and found her free from recurrence and in excellent health.

Patient Alive 19 Years after Operation.

M. S. (Table F, No. 3), aged 38 (children 9, abortion 0), was delivered in the maternity of University College Hospital on January 25th, 1896, naturally, of a living child. She had had no bleeding during the pregnancy, but blood and shreds were passed every day afterwards. On June 5th—four months and eleven days after delivery—she was examined and found to have cancer of the cervix. High amputation was performed on June 30th, 1896. (See Figs. 5 and 6.) In 1915—nineteen years after the operation—I examined the patient and found her free from recurrence and in excellent health. The child lived at least to the age of 8 years. I have no further note about her, and the mother's present address is unknown.

(These three cases were published in the *Obstetrical Society's Transactions*, vol. xi, 1904.)

* Delivered March 1st.

The rarity of the combination of cancer of the uterus with pregnancy is shown by the fact that few gynaecologists have published a list of even ten cases. Moreover, their cases have not been all personally treated by the authors, but are often the collected cases of clinics published in inaugural dissertations and theses, the inexperienced writers of which are wanting in the intimate knowledge which only personal attendance can give. In the clinic of Professor Wertheim, who has had such an extensive experience of this disease, amongst 250 cases of cancer of the cervix, only six were complicated with pregnancy, and some of these were not treated by him. The largest series attended at one clinic I have been able to find is that published by Glockner,[1] consisting of seventeen cases from the Zweifel's Gynaecological Clinic at Leipzig, followed by a series of ten cases from the same clinic by Aulhorn.[2] In 1904 Sarwey[3] had been able to collect from the literature only 240 cases of this combination which had been subjected to operation, and gives the frequency (84,000 labours) as 1 in 1,600 labours.

AGE.

Of the ten patients two were between the ages of 20 and 30 (20 per cent.); seven between the ages of 30 and 40 (70 per cent.); and one was aged 40 (10 per cent.). Of Sarwey's collected series 17.8 per cent. were between 20 and 30, 64.4 per cent. were between 31 and 40, and 17.8 per cent. were between 41 and 50. From the ages of 3,442 cases of cancer not complicated with pregnancy, Sarwey shows that only 3 per cent. were between 20 and 30, 22.4 per cent. were between 31 and 43; 34 per cent. were between 41 and 50.

These figures indicate that in the child-bearing period of life cancer not combined with pregnancy is at its maximum in patients over 40, but when combined with pregnancy, under 40; and that below 30 the frequency of cancer is six times as great in the pregnant as in the non-pregnant.

The youngest of my patients was 26 years of age. I have never met with cancer of the cervix at an earlier age than this. Of Sarwey's collected cases the youngest was only 22; the oldest was 47.

NUMBER OF PREGNANCIES.

Cancer of the cervix is very rare in women who have not been impregnated. Olshausen and Döderlein have published cases of cancer complicating the first pregnancy. Cancer even in the second pregnancy is rare, having been found only six times in Sarwey's 180 cases. To these may be added my Case 3. My 10 cases had had in all 70 children and 11 miscarriages—that is, an average of 7 children and over 8 pregnancies. Six out of the 10 patients had had 8 children, and half of them had had 9 or more children, the greatest number of pregnancies being

15 (Case 9). The influence of multiparity is thus shown, as in all other statistics dealing with this combination.

The reason why cancer of the cervix should be almost confined to parous women and so extremely rare in virgins has been much discussed. Lacerations during labour and abortion have been supposed by many to be the causes, but observations on this point are few; Sir John Williams published a striking case in which the laceration was the only part of the os not affected. It seems probable that lacerations, by exposing the cervical mucous membrane to external irritation, may tend to favour the development of cancer, but its influence is probably small; for cancer often develops in cases in which there is no sign of previous laceration, and in situations where lacerations do not occur; and, moreover, cancer of similar structure occurs in the body of the uterus, where lacerations do not arise.

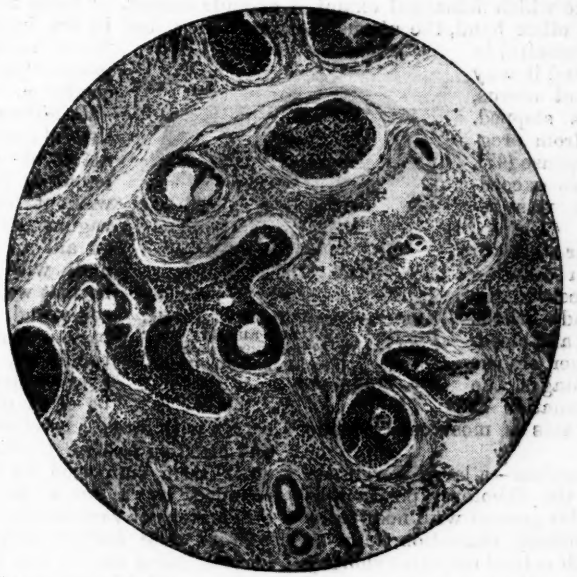

FIG. 2.—Case 1, Table F. Microscopical drawing, low power, showing squamous-cell carcinoma. *Obstet. Soc. Trans.*, xlvi.

Erosions have been thought by some to be a pre-cancerous condition, and very radical methods of treatment have been suggested. As erosions are very common in virgins, in whom cancer of the cervix is extremely rare, it is quite certain that erosions rarely develop into cancer. Nevertheless, in erosions are sometimes found both metaplasia and hyperplasia and even slight downgrowth of the epithelium, so that occasionally the differential diagnosis from early carcinoma is difficult. To the naked eye a case of this kind sometimes shows papillary, club-like, or finger-like processes, or even extensive papillomatous growths which may closely resemble cancer. These growths are, I think, sometimes the result of excessive sexual irritation and of venereal infection. And I am inclined to think that when the question of the causation of cancer of the cervix is solved it will be found that the reason why this disease is almost limited to women who have had coitus is that local venereal infection is almost limited to them. I do not know of a series of scientific investigations into the relations of syphilis, soft sores, and gonorrhoea to cancer of the cervix, but I believe it will be found to be close. I have twice seen cancer of the cervix develop in patients who had previously had a chancre of the cervix.

FIG. 3.—Case 2, Table F. Cervix just before the operation. From a drawing by the author. (Natural size.) *Obstet. Soc. Trans.*, xlvi.

Influence of the Cancer on the Pregnancy.

Cancer of the cervix, by obstructing the canal, by the haemorrhages and discharges to which it gives rise, and the infection and inflammation which often accompany it, tends to prevent the occurrence of pregnancy, and, when it occurs, to produce abortion or premature labour.

Of my ten cases two aborted spontaneously at the fifth and sixth month. Both were septic on admission to the hospital, and it is probable that the infection brought on the abortion. Apart from this there does not appear to be a great tendency for abortion to occur in the early months. Of the six cases of pregnancy in the eighth and ninth calendar months in no fewer than three labour came on prematurely; this seems to show a great tendency to premature delivery. The growth may in some cases be so extensive as to prevent the delivery of the child, and "missed labour" may occur. In one case the uterus ruptured during labour. The high mortality is due to haemorrhage, sepsis, and rupture of the uterus.

Influence of the Pregnancy on the Cancer.

The influence of the pregnancy on the cancer has varied in different cases. The three cases which were inoperable survived from seven to twelve months, which does not show any marked rapidity of growth after delivery, seeing that in all the cases the growth had reached an advanced stage at the time of delivery, which was difficult (forceps, Caesarean section, forceps for rupture of uterus).

SYMPTOMS.

Of the three chief symptoms of cancer of the cervix—haemorrhage, discharge, and pain—the most important is haemorrhage. When the cancer complicates pregnancy the haemorrhage may lead the patient to think she is not pregnant or has miscarried.

Haemorrhage as a result of coitus is a symptom of the greatest importance. It occurred as the first symptom in Case 6 (Table F, No. 2) and was followed by a characteristic thin watery, offensive, blood-stained discharge, which after it had existed for six months led the patient to seek advice. In some cases, however, the growth does not bleed as a result of pressure upon it. An instance of this was Case 9 (Table F, No. 5), and Kreps has published a similar case (*Inaug. Diss.*, Berlin, 1905). In some cases haemorrhage occurs at approximately monthly periods and thus leads the patient into error with regard to the presence or duration of pregnancy.

Discharge is often the earliest symptom, but is unnoticed by the patient, owing to the frequency with which it occurs from other causes. When, however, it is watery and discoloured, or bloodstained, it should at once arouse suspicion; an offensive discharge is due to necrosis, and often occurs only in the later stages of the growth.

FIG. 4.—Case 2, Table F. Microscopical drawing of edge of growth showing squamous-cell carcinoma. *Med. Soc. Trans.*, xliii.

Ordinarily pain does not occur in cancer of the unimpregnated uterus until the growth has extended beyond the organ; occasionally inflammation resulting from bacterial infection will cause it to appear while the growth is limited to the cervix. In cases complicated by pregnancy, pain may occur at an earlier date; it is due to contractions of the uterus or to a threatened or actual abortion, as well as to septicaemic infection, which is very prone to occur in these cases. The secondary symptoms—wasting, malaise, cachexia, pressure symptoms—do not differ from those met with apart from pregnancy.

DIAGNOSIS.

Cancer of the uterus complicating pregnancy always affects the cervix; there is, so far as I know, no case recorded of cancer of the body complicating pregnancy which will stand investigation. The cases formerly published were either cases of chorion-epithelioma or sarcoma.

In the early months it may be difficult to make out the condition of the pregnant uterus on account of the presence of the growth and the bleeding to which bimanual examination may give rise. On the other hand, the uterus is not rarely distended by pus (pyometra) in cases of cancer of the cervix, and it may then closely simulate a pregnant uterus, especially if menstruation has stopped. This will rarely occur apart from pregnancy until the age of the menopause (47), and pregnancy at this age is so exceedingly rare that only one case was recorded in Sarwey's collection.

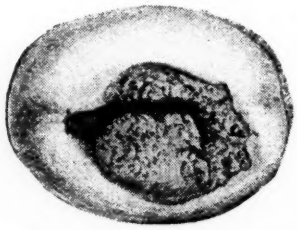

FIG. 5.—Case 3, Table F. Cervix. Drawing by the author after specimen had been five years in spirit. (Natural size.) *Obstet. Soc. Trans.*, xlvi.

On vaginal examination, either a growth or an ulcer will be felt, both differing markedly from the normal cervix by being comparatively hard and brittle, breaking down under the finger, and bleeding on pressure with the finger or the point of a sound. In later stages the uterus may be fixed by inflammation or growth in the cellular tissue; this is most easily made out by rectal examination.

On inspection through a speculum—a large Fergusson speculum, with the patient in the lithotomy position, is best for this purpose—an irregular growth with nodular or club-like processes, with or without ulceration, may be found. The colour of the growth is livid red, often sloughy on the surface, and may contrast with the purple colour of the vaginal cervix. The surface of the growth should be dried with absorbent cotton-wool, and the overhanging edge, the bleeding, and breaking down on pressure noted. If ulceration be present, the only conditions likely to be mistaken for it, namely, tubercle and syphilis, are rare.

In some cases only a hard, smooth enlargement of the cervix is met with; there is neither a projecting irregular breaking-down growth nor ulceration, the growth being in the wall of the uterus. In these cases the finger is easily passed into the cervical canal and recognizes the bleeding growth. A piece of this should be removed for microscopical examination in all cases. This is especially necessary, because the syphilitic and tuberculous affections cannot be distinguished by clinical methods, but are easily recognized under the microscope.

In ordinary cases the diagnosis of the growth is quite easy; the marked contrast of the brittle, bleeding growth with the soft tissues of the cervix of pregnancy leaves no doubt. There are, however, certain diseases of the cervix which closely resemble cancer and certain cases of cancer which lack the usual signs.

FIG. 6.—Case 3, Table F. Microscopical drawing showing squamous-cell carcinoma. *Med. Soc. Trans.*, xliii.

Conditions Resembling Early Cancer of the Cervix.

Hypertrophied papillary or nodular erosions, hypertrophied and inflamed glandular erosions, and papillomata (simple and diffuse) may closely simulate cancer.

By *hypertrophied papillary or nodular erosions* I mean a growth with club-like processes or lobules made up of thick connective tissue centres, often containing dilated glands, covered with a single layer of columnar or cubical epithelium. I have not met with this form during pregnancy, but the diagnosis would be difficult without microscopical examination. This form, however, is not friable.

By *hypertrophied and inflamed glandular erosion* I mean a granular condition similar to the ordinary glandular erosion, but much larger and more vascular; it sometimes measures as much as 1½ in. across, and can be broken into with the point of a sound, and bleeds readily on examination. It does not break down to the extent that cancer does, and the growth does not project from the surface, but in some cases it is necessary to excise a piece in order to exclude cancer. I have not met with this condition in pregnancy, but in the impregnated uterus have several times mistaken it for cancer until the microscope showed the nature of the condition.

Papillary growths are met with in several forms. The pedunculated papillomata of gonorrhoea are occasionally found on the cervix, but rarely, I think, without being present on the vulva or vagina. This scattered distribution is an aid to diagnosis. Broad flat papillomata with a finely granular surface may be met with both in gonorrhoea and soft sores, and, I believe, as a result of masturbation. They bleed and break down under the finger, are generally softer and more friable than cancerous growths, and can be often pinched off the surface of the cervix with forceps, leaving a raw red surface fairly smooth and bleeding freely. Under the microscope a central vascular stem supported by connective tissue is seen surrounded by a mass of large epithelial cells often oedematous or vacuolated.

More solid isolated polypoid or sessile nodules in the cervical canal and at the external os occur occasionally; they consist of stroma of the cervix covered by many layers of squamous epithelial cells (metaplasia of cervical columnar epithelium). In the substance of these growths gland spaces may be cut across of which the epithelium has also undergone metaplasia, so that the spaces are filled with squamous epithelium. If these growths be cut without the subjacent and adjacent tissue the appearance is not distinguishable from squamous-cell carcinoma, although a deeper section shows no such invasion of the deeper tissue of the organ as occurs in true carcinoma. In excising a portion of the cervix for microscopical examination a wedge-shaped piece should be removed including the edge of the suspected growth; care should be taken that the microscopic sections are cut vertically to the free surface and not parallel to one side of the wedge.

Lastly, I would like to direct attention to the unusual features of Case 5, Table F, which led to an erroneous diagnosis. The peculiar features were (1) the smooth surface of the growth pitted by several holes from which a pus-like fluid escaped in considerable quantity; (2) the fact that the growth did not bleed at all, although it was dressed almost daily for nearly two months; (3) that the growth did not break down under moderate pressure; (4) that it did not apparently increase at all during two months' observation, and in the puerperium at first diminished in size. I do not remember to have seen another case of cancer of the cervix in which these "pus" holes were present, although I have seen several in cancer of the vulva. In this case it is to be regretted that a piece was not excised; this would at once have shown that the growth was a columnar-cell carcinoma, and that the pus was the liquefied central epithelial cores.

Although the microscope is of the highest value and is

TABLE E.—*Author's Cases of Early Pregnancy (before the Eighth Calendar Month) complicated by Cancer of the Cervix at University College Hospital, from July, 1887, to October, 1919.*

No	Age.	Children.	Abortion.	Month of Pregnancy.	Result to Mother.		Result to Child.		Mode of Delivery.	Operation Performed.
					Immediate.	Remote.	Immediate.	Remote		
1	6	9	2	5th	Died (sepsis, Sept 26, 1891)	—	Died	—	Natural	No; too far advanced for curative operation; natural abortion, Sept. 8, 1891. Admitted with fever, 103°; septic; rigor.
2	40	9	1	6th	Died (sepsis, Feb. 1, 1895)	—	Lived	Died (in two days)	Natural	No; too far advanced for curative operation; natural abortion, Jan. 23, 1895. Admitted febrile, 100°, pulse 116.
3	29	1	0	6th	Died (Nov. 25, 1906 undelivered)	—	Died	—	Undelivered	No; too far advanced for curative operation.
4	26	2	0	4th	Lived	Died (of recurrence, Sept. 24, 1907)	Died	—	Pregnant uterus removed	Vaginal hysterectomy with the galvano-cautery, March 15, 1906.

TABLE F.—*Author's Cases of Advanced Pregnancy (in the Eighth or Ninth Calendar Month) complicated by Cancer of the Cervix at University College Hospital, from July, 1887, to October, 1919.*

No.	Age.	No. of Pregnancies.	Month of Pregnancy.	Result to Mother.		Result to Child.		Mode of Delivery.	Operation Performed.
				Immediate.	Remote.	Immediate	Remote.		
1	33	5	Term	Lived	Well 25 years after high amputation of cervix	Lived	Died of whooping-cough 11 mths. later	Per vaginam, forceps	High amputation of cervix (April 8, 1893), a fortnight after delivery. Two years later, Porro-Caesarean section with living child, who served as a soldier in the war 1914–18.
2	35	8	8th	Lived	Well 22 years after high amputation of cervix	Lived	Died in 38 mins.	Per vaginam, induction of labour by de Ribes's bag	High amputation of cervix (Jan. 28, 1896), 18 days after delivery.
3	38	9	Term	Lived	Well 19 years after high amputation of cervix	Lived	Well 8 years later	Per vaginam, unassisted, easy	High amputation of cervix (June 30, 1896), 5 months after delivery.
4	30	9	8th	Lived	Died 7 months later	Lived	Living 6 mths. later	Per vaginam, forceps	No; too far advanced for curative operation.
5	39	15	8th	Lived	Died 12 months later	Lived	Living 6 mths. later	Per vaginam, forceps; rupture of uterus	No; too far advanced for curative operation. Rupture packed with iodoform gauze.
6	34	11	8th	Lived	Died 7 months later	Lived	Died 15 days later	Per abdomen, by Porro-Caesarean section, with use of serre-noeud	No; too far advanced for curative operation.

indispensable for the diagnosis of certain cases, clinical examination is also of great importance. For want of this I have known a distinguished pathologist decide, as the result of the examination of a microscopical section, that only normal cervical glands were present, when clinical examination showed a deeply invading cancer. In this case the rare form of cancer, "carcinoma adenomatodes," in which the glands are lined with a single layer of columnar epithelium, would have led to a serious error if reliance had been placed on the microscopic examination alone and the clinical signs had been neglected.

STATISTICS.

I have published tables of cancer of the cervix in advanced pregnancy—that is, in the eighth, ninth, or tenth month—treated by vaginal or combined abdominal and vaginal hysterectomy, from the papers of Glockner (10 cases), Olshausen and Kaussmann (8 cases), in the Obstetrical Society's *Transactions* (vol. lvi, pages 369–371). The percentage of cures in the 18 cases, operable and inoperable, is 5.5. The total immediate mortality is 33.3 per cent., operation mortality 16.6 per cent.

E. Aulhorn's[4] 10 cases from Zweifel's clinic give the results of abdominal hysterectomy: 1 of 3 cases in "advanced" pregnancy remained well after "a good five years"; of 7 early cases 2 recurred and 5 remained free from recurrence after two to three and a quarter years.

E. Wertheim[5] gives 6 cases: 1 advanced case, operated on by Micholitsch, remained well after five years. Of the 5 early cases 1 died of embolism, 1 recurred, the other 3 were "cured."

P. Glarner[6] has recorded 8 cases: 3 in advanced pregnancy were treated by Caesarean section; 5 early cases were treated by abortion and vaginal and abdominal hysterectomy. All the cases recurred.

Trotta[7] gives a list of 26 cases (1879–1905) in advanced pregnancy treated by Caesarean section and total abdominal hysterectomy. The maternal mortality was 33 per cent., the fetal 22 per cent. Of cases operated on in labour the maternal mortality was 53.3 per cent. He showed that the maternal mortality after abdominal operation was more than double and the fetal mortality only half that of the vaginal operation.

Sarwey,[8] in 1908, gave a list of 29 cases of extended abdominal hysterectomy in all of which the mothers survived; it is made up of cases published between 1900 and 1903, but does not contain Wertheim's case of fatal embolism (1905).

Vitanza[9] published in 1898 a paper on amputation of the cervix of the cancerous pregnant uterus. Of 7 cases seen, 4 were treated by high amputation of the cervix; the pregnancy continued and the patients bore living children. Two years later, in a paper on high amputation for cancer, he stated that of 15 early cases only 2 recurred; 9 remained free from recurrence for three to twelve years. In 6 of them pregnancy occurred from 6 months to three years after the operation. The Paquelin cautery was used in all cases after the amputation.

The preservation of the fetus and the possibility of pregnancy following high amputation, as shown by Vitanza's cases and one of mine, are valuable advantages of high amputation which should not be overlooked in considering the question of treatment.

TREATMENT.

The treatment of cancer of the cervix complicating pregnancy varies according as the case is "operable" or "inoperable" and the child is viable or not. The question of operability is usually decided by the absence of fixation of the uterus and of thickening in the parametric tissue, though operation, both vaginal and abdominal, permits the removal of the uterus in certain cases where these conditions are found. The age of viability of the child may be taken for practical purposes as in the last three lunar or two calendar months of pregnancy, in this paper called "advanced pregnancy," pregnancy of shorter duration being called "early pregnancy." In advanced pregnancy the interests of the child and the large size and vascularity of the uterus introduce special problems of treatment and increase the danger of the operation, which is especially great during the course of labour.

Modes of Treatment.

The chief modes of operative treatment which have been employed for cancer complicating pregnancy are by high amputation, vaginal hysterectomy, extended vaginal hysterectomy, abdominal hysterectomy, extended abdominal hysterectomy, and combined abdominal and vaginal hysterectomy.

In the course of the last ten years great advance has been made in the treatment of cancer of the cervix by radium, mesothorium, and *x* rays, and for the last five years in several of the chief clinics of Europe operation has been almost entirely abandoned in favour of radiation treatment. It would seem to entail some risk to the fetus, and I am not aware that it has been employed during the course of pregnancy.

The patients are on the average younger, and therefore presumably stronger than non-pregnant patients, but the disease is apt to be more malignant in the young. The glands are, however, comparatively rarely affected (Wertheim).

Treatment during "Early Pregnancy."

(*a*) "Operable" cases should be operated on at once. The opinion once held that cancer complicating pregnancy was inevitably fatal can no longer be maintained. The best results have been obtained by the extended abdominal hysterectomy, Wertheim's results having been unequalled by any other method. In view of the fact that the glands are rarely affected, vaginal hysterectomy (preferably performed with the cautery) may be employed in feeble or fat patients, as it has a much lower mortality than the abdominal operation, and amputation of the cervix may be performed in early cases of squamous carcinoma, in which there is a desire to preserve the life of the child and the fertility of the mother. During labour or abortion the same operations may be performed if the case is not infected; if infected, the whole womb should be removed.

(*b*) "Inoperable" cases. If the case is not accompanied by bleeding or infection, the patient should be kept at rest and Porro's operation with the serre-nœud be performed when the pregnancy is "advanced." *During labour or abortion* the case should be treated on general principles, with a view of preventing infection, and subsequently treated during the puerperium with the cautery, radium, and *x* rays.

Treatment during "Late Pregnancy."

(*a*) "Operable" cases should be treated by Caesarean section, followed by extended abdominal hysterectomy. If the patient is in fair condition, the operation is indicated equally on the ground of science and humanity.

If the patient is feeble or the growth infected, it might be preferable to remove the cervix by the cautery, and then remove the child by the vagina or by the abdomen, and apply radium after, or without, the removal of the uterus. This procedure would probably be safer to the mother than the performance of abdominal Caesarean section and the removal of the uterus (or the cervix after amputation) by the vagina, but would involve some increased risk to the child. Vaginal Caesarean section entails too great a risk of implantation of cancer cells, and no case is recorded in which it has been followed by cure.

During labour the risk to the patient is greatly increased. In the early stages of labour Caesarean section, followed by the extended abdominal hysterectomy, will usually be the best treatment. But if the labour be advanced and the growth not extensive, it may be safer to deliver the patient *per vias naturales*, and afterwards, at an early period of the puerperium, to treat the diseases by one of the methods mentioned. It is noteworthy that five of the seven advanced cases "cured" were operated on after delivery.

(*b*) "Inoperable" cases should be treated by Porro's operation with the use of the serre-nœud. It has the advantage over the conservative Caesarean section that it removes the placental site from the risk of infection, and over Caesarean hysterectomy with intraperitoneal stump that, in case of infection, discharges will readily escape by the side of the wire, which can be placed on any height above the growth, provided the placental site be removed. In the case of a dead or putrid child it would be possible by the Porro method to close the peritoneal wound above and around the uterus before the body of the organ was opened or amputated.

During the puerperium the treatment does not differ essentially from the treatment of cases of cancer in the unimpregnated.

At the present time there is a great tendency abroad to treat these cases with radium, mesothorium, and *x* rays, a reaction having set in against the extended abdominal hysterectomy on account of its high rate of mortality. The late Dr. Pozzi[10] proposed a restricted vaginal hysterectomy completed by radium therapy in cases of cancer of the uterus. Although such an operation is unsuitable for some cases of cancer during pregnancy, I believe that in the puerperium vaginal hysterectomy, or high amputation, performed with the cautery and completed by the application of radium and *x* rays, will be found to give better results than the extensive operations now usually practised.

The three cases of high amputation described in this lecture which have remained free from recurrence for twenty-five, twenty-two, and nineteen years, are instances of the possibility of cure by simple operations, which are free from danger. As far as I know only two other cases of cancer complicating labour in advanced pregnancy are recorded which have remained well for five years after operation—namely, Olshausen's (five and three-quarter years), and Von Ott's (eight and a half years) both operated on by vaginal hysterectomy in the puerperium. Two additional cases have been cured—namely, Micholitch's (five years) and Aulhorn's (five years), both operated on by the extended abdominal hysterectomy. The former was in advanced pregnancy but not in labour; no information as to the presence of labour was given in Aulhorn's case. I attribute the result in my cases to the use of the cautery (in two of the cases) and of antiseptic douches, and also to the fact that the operation was performed after delivery when the tissues were involuting.

The rarity of cure of cancer complicating labour in advanced pregnancy seems to justify the republication of these cases with a later after-history.

Sarwey, in Veit's *Handbuch der Gynäkologie*, while mentioning the title of my former paper in the bibliography, does not allude to the cases in the text. Perhaps the after-history of Case 5 may lead the next German writer on the subject to consider the cases worthy of mention.

REFERENCES.

[1] *Beiträge für Geb. und Gyn.*, Leipzig, 1902. [2] *Archiv für Gyn.*, vol. xcii, p. 242. [3] Veit's *Handbuch der Gyn.*, vol. ii, p. 850 (1908). [4] *Archiv für Gyn.*, vol. xcii, p. 242. [5] Die erweiterte ab dominelle Operation bei Carcinoma Colli Uteri, 1911, p. 196. [6] *Inaug. Diss.*, Zürich, 1907. [7] *Archiv di Ost. e Ginecol.*, April, 1906, p. 172. [8] Loc. cit. [9] *Archivdi Ost. e Ginecol.*, 1898, p. 670, and 1900, p. 257. [10] *Revue de Gynécologie*, vol. xxiii, p. 209 (1915).

THE THERAPEUTIC VALUE OF OXYGEN IN PULMONARY LESIONS.

PRELIMINARY NOTE.

BY

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IT has been demonstrated by Stadie[1] that in cases of pneumonia with cyanosis there may be a considerable deficiency in the oxygen content of the arterial blood. He determined this by examining blood taken from the radial artery, using the technique of Van Slyke.[2] Using due precautions during collection against exposure to air, he estimated in one sample of the blood the oxygen content and in another sample the total oxygen capacity of the blood; then by comparison of the two results he determined the degree to which the arterial blood was unsaturated with oxygen.[5] In normal persons he found this to average 5 per cent. His results showed that there was a close relation between the degree of unsaturation of the blood with oxygen and the degree of cyanosis; while in addition there was a direct relation between the intensity of the cyanosis and the condition of the patient. In other words, the greater the degree of oxygen unsaturation of the arterial blood the more critical was the patient's condition.

The value of oxygen administration in pneumonia has been a subject of much controversy, and the present

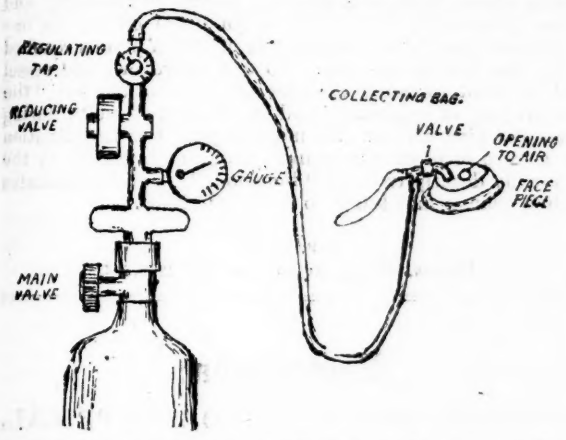
Table showing Effect of Oxygen Inhalation on Oxygen Content of Arterial Blood.

Case No. and Disease.	Date.	Cyanosis.	Respirations.	Oxygen given per Minute.	Haemoglobin. Per Cent.	C.cm. Oxygen at 760 mm. Hg and 0° C. taken up by 100 c cm. of Blood.	C.cm. Oxygen Capacity at 760 mm. Hg and 0° C. of 100 c.cm. of Blood.	Percentage of Oxygen Unsaturation.	Percentage of Oxygen Saturation.
I. Pneumonia.	1920 January 23	Slight	42	None	80	2.24	14.73	15.1	84.9
	,, 26	++	44	None		2.62	14.64	17.9	82.1
	,, 26	0	44	2 litres for 4 hrs.		1.33	14.64	9.08	90.92
	,, 27	0	42	1 litre for 18 hrs.		1.32	14.67	9 0	91.0
	,, 28	+	42	None for 4 hrs.		2.33	14.77	15 5	84.5
	,, 29	0	36	3 litres for 24 hrs.		0.44	14.76	3.05	96.95
II. Pneumonia.	February 11	Slight	48	None	98	1 94	18.23	10.6	89.4
	,, 12	−	36	2 litres for 20 hrs.		0.341	18.40	1.85	98.15
III. Acute and chronic bronchitis.	February 10	+	38	None	97	2.08	18.16	11.4	88.6
	,, 11	−	34	2 litres for 4 hrs.		0.55	18.27	3.01	96 99
IV. Normal.	February 13	−	16	None	104	0 852	19.40	4 4	95.6
	,, 13	−	15	2 litres for 100 minutes		0.37	19.7	1.87	98.13

investigations were undertaken to determine whether oxygen adequately administered would increase the oxygen saturation of the arterial blood in this condition.

Effect of Oxygen Inhalation in Lobar Pneumonia and in Bronchitis.

The following cases illustrate the results which may be obtained when oxygen is administered in an efficient manner. The method of administration was that devised by Haldane.[3] No difficulty was experienced by the patients provided the apparatus was in efficient working order.



Dr. Haldane's apparatus, reproduced from his paper in the BRITISH MEDICAL JOURNAL, July 19th, 1919. The gauge shows the amount of oxygen in the cylinder. The reducing valve reduces the pressure to a small amount, which remains constant till the cylinder is empty. The regulating tap shows the flow of oxygen in litres per minute. The tube is of thick-walled rubber. The face-piece is provided with elastic straps and a rubber pneumatic cushion which can be removed for disinfection. The collecting bag, of flexible rubber, is small, and is connected with the face-piece through a mica valve which prevents expired air from entering it. The face-piece has a rubber flap to cause a very slight resistance. During expiration the oxygen collects in the bag and is sucked into the face-piece at the beginning of inspiration. From the movements of the bag it can be seen at any moment whether the patient is receiving the oxygen. The apparatus is put into action by opening the main valve freely and adjusting the tap to give two litres a minute, or whatever greater or less amount may be desired. With a delivery of two litres a minute a 40-foot cylinder lasts nearly ten hours.

The blood of the patients so treated was obtained by the procedure described by Hürter.[4] The method for estimating the oxygen content and the oxygen capacity of the arterial blood used in the present observations will be described in a future communication. The main principle of the method was to determine the amount of oxygen which a known quantity of arterial blood would take up, taking proper precautions to avoid exposure to air before the estimation was made. Then the total oxygen capacity of the same sample of blood was determined by the ferricyanide method, and the ratio between the two gave the percentage of saturation or unsaturation with oxygen of the arterial blood.

EXAMPLE OF METHOD.

Amount of blood taken: 2.025 c cm. Haemoglobin = 103 %.
Amount of gas absorbed, 0.039 c.cm. Bar. 29.76 in. of mercury; temperature 10° C.
Amount of gas absorbed, 0.03697 c.cm. at 760 mm. Hg and 0° C.
Amount of gas physically dissolved, 0.0186 c.cm.
∴ Amount of oxygen taken up by haemoglobin of 100 c.cm. of blood = 0.907 c.cm.
Total oxygen capacity of 2.025 c.cm. of blood = 0.410 c.cm.
Total oxygen capacity of 2.025 c.cm. of blood reduced to 760 mm. Hg and 0° C. = 0.38704 c.cm.
∴ Total oxygen capacity of 100 c.cm. of blood reduced to 760 mm. Hg and 0° C. = 19.11 c.cm.
∴ Unsaturation of arterial blood with oxygen = 4.8 %.
∴ Saturation of arterial blood with oxygen = 95.2 %.

CASE I.—*Lobar Pneumonia.*

The patient came under observation on the fifth day of the disease. He was suffering from lobar pneumonia, which involved the whole left lung except for a small portion of the apex of the upper lobe. The respirations were 42; there was no orthopnoea, but slight cyanosis. The degree of oxygen unsaturation of the blood from the radial artery was 15 per cent. of the total oxygen capacity.

On the eighth day of disease the cyanosis was more evident, and the arterial blood was 17.9 per cent. unsaturated with oxygen. At 3 p.m. of this day oxygen was first given to the patient by the Haldane apparatus. It was set to deliver 2.5 litres of oxygen a minute. At 5 p.m. another sample of arterial blood was examined and was found to be only 9.08 per cent. unsaturated with oxygen. During the night the oxygen administration was continued at 2 litres of oxygen per minute, and on the ninth day of disease the oxygen unsaturation of the arterial blood was 9.0 per cent. The oxygen was continued till 11 a.m. on the tenth day of disease, when it was stopped. Blood was drawn from the radial artery at 3 p.m., and it was found to be 15.5 per cent. unsaturated with oxygen. Cyanosis was present at this time. Oxygen amounting to 3 litres a minute was now administered and continued until next day, when it was found that the cyanosis had disappeared and that the arterial blood was only 3.05 per cent. unsaturated with oxygen. During the next night the patient had the crisis.

It is evident from this case that the degree of cyanosis and arterial blood unsaturation with oxygen may be readily regulated by the administration of oxygen in sufficient quantities by the Haldane apparatus.

CASE II.—*Lobar Pneumonia.*

This patient had pneumonia which involved the left lower lobe and part of the right lower lobe. There was slight cyanosis, and the arterial blood unsaturation with oxygen was 10.6 per cent. This was on the sixth day of the disease. The patient was given oxygen, amounting to 2 litres a minute, until the next day, when all signs of cyanosis had disappeared, and the arterial blood was found to have an oxygen unsaturation

amounting only to 1.85 per cent. The oxygen was continued, and the next day the patient had the crisis.

CASE III.—*Acute Exacerbation of Chronic Bronchitis.*

This patient was suffering from an acute exacerbation of a chronic bronchitis associated with moderate cardiac failure. There was slight orthopnoea and cyanosis, with an irregular distribution. The hands and ears were purplish in hue, while the lips were only slightly so. The arterial blood was unsaturated with oxygen to 10 9 per cent. Two litres of oxygen a minute were administered by the Haldane apparatus during the next twelve hours, when the cyanosis had completely disappeared, and the orthopnoea was practically gone. The arterial blood at this time was unsaturated with oxygen to 3.01 per cent.

EFFECT OF OXYGEN INHALATION IN HEALTH.

The degree of unsaturation with oxygen of the arterial blood of five normal cases was determined. It was found to average 5.1 per cent., ranging from 4.4 per cent. to 5.6 per cent. It will be noticed that in the pathological cases outlined above the arterial blood oxygen unsaturation showed an appreciable decrease from normal when a sufficient oxygen concentration of the in-pired air was administered. Therefore it was considered of importance to determine whether the administration of oxygen would reduce the oxygen unsaturation of the arterial blood of a normal person. Arterial blood of a normal adult was examined and the oxygen unsaturation was found to be 4.4 per cent. Two litres of oxygen a minute were administered by the Haldane apparatus for 100 minutes and the arterial blood again tested for the arterial oxygen unsaturation, which was then found to be only 1.87 per cent. This confirmed the previous observations in the abnormal cases that the inhalation of inspired air sufficiently enriched with oxygen may diminish the oxygen unsaturation of arterial blood beyond the normal limits.

CONCLUSIONS.

1. In certain respiratory diseases where there is anoxaemia of the arterial blood the efficient administration of oxygen will diminish this anoxaemia and so relieve the cyanosis.

2. If the oxygen be given in sufficient concentration in the inspired air the arterial saturation with oxygen may be raised above normal.

3. This result may be obtained both in normal individuals and also in certain of those suffering from certain respiratory diseases.

REFERENCES.

[1] Stadie, *Journ. of Exper. Med.*, vol. xxx, No. 3, 215, 1919. [2] D. D. Van Slyke, *Journ. Biol. Chem.*, 1918, xxxiii, 147. [3] Haldane, BRITISH MEDICAL JOURNAL, July 19th, 1919. [4] Hürter, *Deutsch Arch. klin. Med.*, 1912, cviii. 1. [5] C. Lundsgaard, *Journ. Biol. Chem.*, 1918, xxxiii, 133; *Journ. Exper. Med.*, 1918, xxvii, 179, 219.

CUTANEOUS MANIFESTATIONS IN A CASE OF CERVICAL FISTULA.

BY

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THE following case raises some points of general importance:

In September, 1919, Nurse M., aged 30, consulted me for loss of hair, and complained of being "run down." I found falling of the hair of the scalp and eyebrows and some loss of eyelashes. The skin generally was dry and rather scaly; the cheeks were not flushed, but the complexion was muddy and the face wanting in expression; the voice was normal. The front and sides of the neck, as well as a V-shaped exposed portion of skin over the sternum, were very red, suggesting at first sight sunburn, but on closer inspection the redness was seen to be due to dilated venules without heat, swelling, oedema, or pigmentation. On the right side above the head of the clavicle was a very white patch 2 in. in diameter and nearly circular; it resembled leucodermia, but there was no trace of excessive pigmentation at its margin as occurs in true leucodermia.

Below and internal to the centre of this white area was a round puckered patch of thin skin about 1.5 cm. in diameter, situated about 1.5 cm. above the head of the right clavicle and nearly 3 cm. from the middle line of the neck. On deglutition, this bit of overstretched skin was drawn in and formed a tubular dimple, half an inch deep. Several medical men had, the patient stated, seen it and been unable to explain it. Passing upwards, backwards, and inwards, I felt a firm round band apparently as large as a No. 2 gum-elastic catheter. She said she was liable to occasional regurgitation of matter into her mouth "like the discharge from a gumboil." The diagnosis was obvious—a pouch at the upper end of a cervical (branchial) fistula. She stated that her father told her that her "grandmother had something like it." I prescribed a lotion for the scalp, and internally iron and one grain of thyroid extract at bedtime.

When seen on November 17th she looked and said she felt much better, had found benefit quickly from the treatment and release from nursing a mental case. Her complexion was clear, colour good, and the hair had much improved. The redness of the neck had nearly gone, and there was now no contrast between white and red. The overstretched (often so-called atrophic) skin had become red, as if recovering normal nutrition. The round, firm, rod-like band was thinner and more distinctly fibrous. The dimpling on deglutition was not so marked, only a quarter of an inch.

A few years previously the patient had the appendix removed and after the operation was told that she had better never take another anaesthetic, as she had then taken it badly. Seven years ago she had "faintings and a suspicion of hyperthyroidism and mitral disease." She believes the cervical fistula discharged, until the age of ten years, through a little lump the size of half a pea. Sometimes, if she leans forward on a stiff collar, "a discharge is felt coming from the throat into the mouth." I think the right thyroid was more prominent than it was in September (two months earlier).

I do not think I ever met with such a change in nutrition before and in such a short time; the oddest point to me being the change found in the round ligamentous band and its attachment to the skin. Is Nature trying to absorb the band or reopen it as a sinus? It is so obvious that the patient, whose physique is otherwise good, is having her health ruined by the filthy pouch that I have passed her on to a surgeon's care.

The red area of skin on the sides and front of the neck, already referred to, was too peculiarly localized and delimited to be attributable solely to exposure to light and weather. It corresponds to the area of referred "choking pain" described by Head in connexion with the passage of an oesophageal bougie.[1] It is also a blushing area, as is well shown in some young women. That vasomotor pathological changes should take place there is not so surprising when we consider that it is probably at the "seaming-up of the segments" that such affections as linear naevi, ichthyosis hystrix, linear papillomata, and even occasionally lichen planus (in lines) occur. In one very rare case I have seen a line of lichen planus reached from the hip to the foot. No one nerve or blood vessel will account for such changes of distribution, but "the seaming-up of segments" and the closing of clefts during fetal life give a clue. During last year I called attention to a rare form of tuberculide, and suggested for it the clinically descriptive term "lichenoid." It closely imitates lichen planus and tends to develop in lines.

REFERENCE.

[1] *Brain*, 1893, vol. xvi, p. 1, and Fig. 12, p. 364.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

SUBCUTANEOUS RUPTURE OF THE SUBCLAVIAN ARTERY.

ON January 16th, 1918, a heavy, muscular man, aged 48, weir keeper at one of the up-river locks, was hurriedly pulling up one of the sluices during rising water when he suddenly felt a severe pain in the right arm and at once experienced considerable loss of power. There was no mark of injury and no swelling to be detected, but the whole hand and forearm felt cold, numb, and weak, and he had to stop work at once. Five weeks after the injury I found that the right arm was quite cold and pale. There was no muscular wasting, and all ordinary movements could be carried out with precision. No pulse at all could be detected anywhere in the arm from the axilla downwards, but the subclavian pulse was readily felt and appeared to be equal to that on the other side. No aneurysmal or other swelling could be detected, and, in fact, beyond the absence of pulse and the pallor and chilliness of the arm, nothing abnormal was to be found. There was no evidence of any cardio-vascular disease.

I saw the man again on May 4th, sixteen weeks after the injury, and by this time colour, warmth, and a good deal of power had returned. The right radial pulse had reappeared but was smaller than the left, and could not be traced up the arm beyond a point about one inch above the bend of the elbow.

I did not see him again until January, 1920, exactly two years after the injury, and the pulse by this time could be felt throughout the limb, but appeared to be weaker than on the other side from the middle of the brachial artery upwards. There was no sign of aneurysm and, in fact, the patient was normal in all respects, except that he found himself unable to use the arm in cold weather without discomfort.

The history of this case seems to make it quite clear that what occurred was a rupture of the subclavian artery at the point where it crosses the first rib, and from the absence of haematoma or other evidence of extravasation it seems probable that only the inner and middle coats of the vessel had suffered. The mechanism of the injury is probably explained by powerful muscular contraction bringing the clavicle into forcible contact with the first rib and so crushing the artery. I find, from experiments upon myself, that contraction of the shoulder muscles while in such an attitude as would be adopted in pulling up a heavy sluice gate does cause obliteration of the radial pulse. Whether this is a common phenomenon, or whether it is present only in those of a particular build or particular degree of muscular development, I am unable to say.

CECIL ROWNTREE, F.R.C.S.,
Surgeon to the Cancer Hospital and to the Dreadnought Hospital.

LOCALIZATION OF FOREIGN BODY.

IN the review of Captain Harold C. Gage's book in the BRITISH MEDICAL JOURNAL of January 31st, p. 154, it is said that the author had convinced himself "that the usual report from the radiographic department—that a foreign body was situated so many centimetres under a certain mark made on the skin—was insufficient for the operating surgeon."

But provided the mark on the skin is correctly made and the depth properly calculated by any method of localization, and provided an atlas of sectional anatomy of the body is at hand, there is a very simple method of conveying sufficient information in anatomical form to the operating surgeon. Suppose, for example, in the case of a chest the mark on the skin is made at the level of the eighth dorsal vertebra on the right side posteriorly 10 cm. from the middle line, and that the depth perpendicularly in therefrom is calculated to be 15 cm., and that the antero-posterior thickness of the chest at the level of the mark is 30 cm., then we have only to work out these data by simple proportion (the rule of three) on a drawing of the transverse section of the normal anatomy of the chest at the level of the eighth dorsal vertebra, on the same side in any reliable atlas of sectional anatomy. If the corresponding thickness of the chest at this level in the atlas is 7.5 cm., then the depth in from the surface point corresponding to the mark on the patient's skin becomes 3.75 cm. at a proportional distance from the middle line of 2.5 cm., and we can at once actually demonstrate to the surgeon in charge of the case the probable anatomical position of the foreign body in question, and its relation to the organs and tissues around, on the section as on a chart.

The atlas latterly supplied to the British *x*-ray departments in France unfortunately did not portray the limbs. The principles of what may be called the "trigraphic" method of localization could evidently be applied to all parts of the body in suitable (mostly quiescent) cases. The dimension in the patient chosen for comparison with the corresponding dimension in the chart might be thickness, or circumference, or the distance between recognizable prominences of bone.

This method had long been in my thoughts; I managed in the press of other duties to verify it in 1918 when abroad. It enables the radiographer to answer without mere guessing the oft-repeated questions: "Is the foreign body within or without the ribs?" "Is it below or superficial to the blade of the scapula?" and the like.

Bishopston, Bristol. W. COTTON, M.D.

Reports of Societies.

EYESIGHT OF MINERS.

A DISCUSSION on illumination in mines, with special reference to the eyesight of miners, arranged by the Illuminating Engineering Society and attended by many ophthalmic surgeons as well as mining representatives and lighting engineers, was held at the Royal Society of Arts on February 24th, with Mr. J. H. PARSONS in the chair.

The discussion was opened by Dr. T. LISTER LLEWELLYN, who, in dealing with the photometric values of the lighting in use to-day in mines, said that the lighting values were extremely low owing to two factors—first, the insufficiency of the light generated; secondly, very feeble illumination that entered the eye of the miner owing to the high proportion of light absorbed by the blackness of the coal face. These two conditions presented the problem to be overcome. Of the light given by a naked tallow candle about one-tenth reached the coal face, and one-tenth of this, or one-hundredth part of the original source of light, entered the miner's eye. In the safety-lamp mines only one-fiftieth of the value of the illuminant reached the coal face, and only one-five-hundredth part the eye of the miner. They needed to increase the value of the lighting in the safety-lamp mines five-fold, and then it would equal in value the light in the naked-light mines. He showed the various forms of light in use and compared their values and relative advantages. Of those shown, the best appeared to be of the head lamp variety. The electric battery was carried on the belt of the miner and the current carried by a flexible wire to the lamp fitted to the miner's cap. The lamp in this position gave a good field of light, close to the miner's work, and therefore in far greater power than was possible with a hand lamp, and, further, a light quite free from shadows. Calculating the injury and loss sustained by miner's nystagmus he showed that on pre-war values the economic loss to the country from this disease was at least £1,000,000 per annum.

Dr. H. S. ELWORTHY communicated some researches into the different values of light as affected by colour relief. The coal was nearly black, and there was a total absence of colour relief. He believed this of itself accounted for much eye fatigue. Whitewashing the posts and roofs of the workings would give much relief. Various tests which he described indicated that the rich yellow light with a tinge of red in it given by the oil lamp was a most comfortable light, but that in the bad air of a deep working this light became bluish. This blue light and the bad air were particularly irritating. Further observations indicated that there was more nystagmus in mines where the coal face was of a bluish tint—for example, in the steam coal mines.

Dr. J. S. HALDANE said that he did not think that the quality of the air in mines had much to do with nystagmus. The air on the coal face of a decently ventilated mine (and they were mostly so now) was very pure. He considered the disease was a local neurasthenia induced by the fatigue of trying to see in darkness. He instanced the analogy of certain respiratory troubles following gas injuries at the war.

Mr. ARMITAGE, a representative of a Yorkshire colliery company, said a prize of £1,000 was offered by the Government in 1911 for the best electric lamp; £600 was awarded to the C.E.A.G. lamp and smaller sums to others His company ordered 10,000 lamps; they had been working since then, and the facts obtained seemed to warrant a definite decision being arrived at. The use of the lamp was followed by (1) reduction of nystagmus, (2) fewer accidents, (3) quicker movement of the men from the pit bottom. The whole costs of their use for six years worked out at 1.29d. per shift—a very reasonable figure.

Dr. F. SHUFFLEBOTHAM commented on the great increase of interest in the disease shown in recent years. He thought Dr. Llewellyn underestimated the loss caused by the disease; the number of certified cases did not give the full tale. He considered it a general nervous disease and not an eye disease.

Mr. FUDGE, the secretary of the committee of inquiry now sitting, stated their chief object was the improvement of the miner's lamp, and he thought they were getting on.

Lamp makers had taken great interest in the matter. But there was a limit of improvement possible on present lines. The weight of the battery limited it, and one line of improvement might be better batteries. Flame lamps had been made to give 2½ candle power, but they were found to get so hot that they could not be held. He thought there were possibilities in the extension of white-washing. Mr. ELLWOOD commented on the fact that there had been a great increase in the disease since the war, notwithstanding that the electric lamp was more in use than ever. He thought this must indicate some causation other than light. A member of the audience, who stated he had been a working miner, spoke of the benefit of the electric lamp, and believed his testimony was not biassed by the fact that he was now an agent for a lamp company.

Dr. LEYTON DAVIS of Cardiff thought there must be some condition other than bad light as a cause of these cases. He had taken observations on the fields of vision, and found a striking similarity between those of miners and those of the subjects of toxic diseases. He thought that chronic gas poisoning had a serious influence. Mr. HARRISON BUTLER said miner's nystagmus took some ten to twenty-five years to develop, therefore they could not expect great improvement in this generation of miners. Dr. HARFORD stated that miners who were free from disease on enlistment had subsequently, under the stress of war, developed the symptoms, so that there was evidence of latency. His inquiries amongst Belgian and French miners showed their great belief in the efficacy of the better electric lamps.

Dr. H. POOLEY stated that miners did not give up and claim compensation until they could not work. He thought the disease was a cerebral irritability caused by bad light and bad air. He confirmed the evidence of latency. Dr. ETTIE SAYER spoke of the comfort of yellow light, particularly as evidenced by the use of very powerful lights in the treatment of skin diseases. Dr. BERNARD CRIDLAND thought there was room for a joint inquiry by ophthalmic surgeons and lighting engineers. Dr. WHITEHEAD said the problem was not an easy one to solve. But he had no doubt that the disease was due to trying to see under disadvantageous conditions.

Mr. BISHOP HARMAN asked if the head lamp shown by Dr. Llewellyn would be considered safe in fiery mines; the length of flex seemed vulnerable. Further, he commented adversely on the trend in improvements in electric lamps being limited to more powerfully glowing filaments. Why did not inventors turn their attention to the vapour lamps, which in experimental form were remarkable? He thought that the work of Josiah Court had long ago demonstrated that bad light was the one important cause of the disease, and that to spend time on adjuvant factors until the light was bettered was to draw a red herring across the trail.

Dr. LLEWELLYN, in reply, thought that the future lay with the head lamp; he believed it to be as safe as any lamp (there were expressions of dissent from the mining representatives). Finally he called attention to an experiment which had been carried out before their eyes; during the meeting the oil lamps had burned out, but the electric lamps were glowing as well as ever.

ACCESSORY FOOD FACTORS IN INFANT FEEDING.

A DISCUSSION on the influence of vitamines in infant feeding took place at a meeting of the Section for the Study of Diseases of Children, of the Royal Society of Medicine, on February 27th, Mr. J. P. LOCKHART-MUMMERY presiding.

Dr. E. MELLANBY, who opened the discussion, confined himself to the question of fat-soluble A. Its distribution in foodstuffs, he said, rendered it the most important factor from the point of view of child nutrition. It had not been decided whether fat-soluble A and the anti-rachitic factor were the same, but he believed that this was the case. The results of his experiments on dogs differed from those of some workers who had experimented on other animals, notably on rats. This factor did not appear to be necessary to growth, and he had found a distinct amount of anti-rachitic factor present in some, not all, vegetable fats. The relation of the anti-rachitic factor to the age of the animal was clearly brought out. It was practically impossible to produce rickets in dogs more than four or five months old by the methods he had adopted. With increasing age the animal became less dependent upon an anti-rachitic factor, and any rickets which had previously developed tended to cure itself. The relation of the anti-rachitic factor to the energy-producing power of the diet was also sharply defined. In animals which were fed on a deficiency diet under exactly the same conditions, the only variable element in the diet being bread, which was given *ad libitum*, it was found that the animals which ate most bread got most pronounced rickets. The carbohydrates appeared to accentuate the rachitic tendency, while protein diminished it. Exercise had the same effect as protein; it increased the energy output, while carbohydrates increased the laying on of tissue. Dr. Mellanby cited certain statistics collected some years ago by Dr. William Hall, of Leeds, upon the comparative conditions as to rickets among Jewish and Gentile children. A much smaller percentage of Jewish children showed evidence of rickets and bad teeth, and this was true alike of a poor district and a better-class district. The evidence that diet was the deciding factor in this instance was very strong. In Jewish households large quantities of oil were used in cooking; potatoes were never boiled in water, but in milk, or were fried in fat, and the ordinary beverage was cocoa made with milk. He considered that diet was the most important element in child nutrition in the first year of life, and that the anti-rachitic factor was an important part of this diet. It was assisted in its action by anything which increased the energy output of the child, such as increased protein or exercise, and was prevented by increased carbohydrates or anything which tended to make the child put on flesh.

Professor NOËL PATON held strongly that evidence was still lacking for the theory that rickets was due to dietary deficiency alone. No far-reaching conclusions could be drawn from such evidence as was at present available. He considered that to compare animals of different litters and to group puppies of different ages was unjustifiable. More experimental evidence, the value of which could be definitely estimated, was wanted. Further work on the association of fats with energy values must be undertaken. The evidence was far from being complete that milk contained an accessory factor protective against the development of rickets. A series of inquiries which he had addressed to the larger hunts in the country, the returns covering 600 whelps, failed to support the idea that deficiency of fat-soluble substance was a causal factor. He recapitulated the observations which, with Findlay and Watson, he had already published in the BRITISH MEDICAL JOURNAL (December 7th, 1918, page 625), and said that to his mind more and better co-ordinated investigation was necessary before the etiology of rickets could be adequately discussed. The possibility that it might be primarily an infective disease, due to some non-specific organism, must be borne in mind. Certainly in experiments on puppies, the more scrupulously clean the kennels were kept the less did rickets develop.

Dr. ROBERT HUTCHISON thought that most clinicians would agree that the dietetic factor was essential in rickets, but he was not convinced that the fat-soluble accessory factor was alone concerned. The fault that produced rickets was an ill-balanced diet, in which there was a relative excess of carbohydrates. By cutting down the carbohydrates, even though the rest of the diet was left much as it was before, the clinical cure of the condition could be effected. It seemed to be unnecessary, therefore, to evoke as an explanation some elusive thing named a vitamine. The vitamine theory must not be overdone. It was the latest dietetic "stunt." There had been previous "stunts," each of which had had its day. He did not dispute that there were such things as vitamines, but to make far-reaching application of the theory was not yet justifiable.

Dr. C. J. MARTIN held that there was no doubt that rickets was a dietetic disease. From the epidemiology of the disease and the clinical results obtained by altering the diet it was difficult to come to any other conclusion. Dr. Mellanby's experiments were of the first importance to orientate future inquiry. He did not think Professor Paton had made a serious assault upon the position taken by the opener, which, in his opinion, was a moderate one. What was really wanted was to put the vitamine question on a quantitative basis. For many years

at the Lister Institute his colleagues had been endeavouring to place this question on such a basis so far as beri-beri and scurvy were concerned. He described the work on the antiscorbutic vitamine, showing how widely the results varied with different animals. If the work were done on rats, the conclusion might be that there was no such thing as an antiscorbutic vitamine; if on guinea-pigs, that it was the most essential thing in the diet. The quantitative line of investigation had made it possible to estimate the value of certain foodstuffs; for example, if the value of lemon juice from the point of view of antiscorbutic factor were taken as 100, that of equal weights of cabbage juice would be the same, that of swede juice 60, that of carrot juice 7.5, a lightly cooked potato and beef juice 7.5, and that of fresh milk 1.0 or 1.5.

Dr. E. A. BARTON exhibited two preparations which had proved of considerable use in the Child Welfare Department of University College Hospital during the war when the raids and deficient food disturbed lactation. Dried milks seemed to satisfy the children, but the diet was devitaminized, and the question was what should be added. Orange juice was used, the whole orange being minced, with pulp and rind, the latter containing the essential oil of orange which acted as a preservative of the juice. The mass was passed through a tincture press, and one teaspoonful of the juice expressed was given twice a day to infants under three months and two teaspoonfuls to those over three months. When oranges were scarce and juiceless he tried vegetable juices, but as these seemed to be culture media, the result was a good deal of diarrhoea. The other substance he brought forward was an artificial cream made of beef suet. The trouble in making this was that suet had a very high melting point, but by adding about 12 per cent. of inert olive oil it was got down to a suitable emulsion. The children took it very well, and it was now being made commercially as "university cream." This cream had the same percentage of fat as skimmed cream, would keep for months, was free of tubercle, and would mix with any dilution of milk. It was not expensive, and quite palatable.

The method of manufacture is as follows, quoted from Mr. Hampshire and Mr. Hawker in *Transactions* of the British Pharmaceutical Conference, 1919:

Beef suet	40 oz.
Olive oil	5 oz.
Syrup	25 fl. oz.
Benzoic acid	35 gr.
Decoction of Irish moss	70 fl. oz.
Water...	to 1 gallon

The oil is added to the melted suet and the benzoic acid dissolved in the mixture. The decoction is heated to about 60° C. and placed in the emulsifier, and the fats are then added at about the same temperature. The emulsion is then worked up and the syrup and water added last.

Dr. ERIC PRITCHARD also exhibited a form of artificial cream made with oils containing a rich supply of fat-soluble A factor, and of chemical composition closely analogous to human butter-fat. He objected to the application of the word "anti-rachitic" to any particular vitamine. The particular symptoms of malnutrition which followed from deprivation of this accessory factor ought to be ascertained. The majority of cases of malnutrition were due not to deficiencies but to excesses. To label any one accessory factor the anti-rachitic factor was a retrograde step, because it induced people to think that rickets was a perfectly simple disease only due to one cause, and capable of being cured by a teaspoonful of cod-liver oil.

Dr. LAWSON DICK called attention to the geographical distribution of rickets. The area from 40 deg. N. to 58 deg. N. across Europe and America included the whole of the rickets zone. This was the temperate zone, the zone of deciduous trees, the wheat-growing zone, but, above all, it was the great industrial zone of the world. Four hundred millions of Asiatics lived on rice, under ideal conditions for diseases due to want of vitamines, but rickets did not develop.

Dr. MELLANBY, in reviewing the discussion, said that he wished to disclaim any responsibility for the excessive importance attached to vitamines by some people. In reply to one speaker who had suggested a hereditary element in rickets, Dr. Mellanby said that heredity was the very last hypothesis he was going to adopt. It was true that some of his animals were more susceptible to rickets than others under comparable conditions, but he took it that this was because some animals grew more rapidly.

EARLY SIGNS OF SCURVY.

AT the meeting of the Section of Medicine of the Royal Society of Medicine on February 24th, Dr. A. F. VOELCKER presiding, a paper was read on "Early manifestations of scurvy," by Colonel RANSOM PICKARD and Dr. G. W. LLOYD. The authors described a group of cases which they encountered in the middle of 1915 at a divisional rest station in France. Thirty-two cases in all were observed, but the authors devoted most of the paper to a detailed discussion of the appearances seen in twenty of them. Out of a first series of twelve cases anaemia was present in ten, pyorrhoea in seven, bleeding gums in three, muscular pains in nine, ecchymosis in two, rash in three, and night blindness in nine. Out of a second series of eight cases, all had a definite anaemia, four had pyorrhoea, six had bleeding gums, six had muscular pains, and seven had night blindness. Special attention was drawn to the symptom of night blindness, as this was the symptom which finally decided the diagnosis. The authors described in detail the tests they made of the night vision of these patients, compared with controls. The circumstances in which the cases arose were that during the summer of 1915 the troops of the division from which these men were drawn were in the trenches from four to six days at a spell, during which time they had no fresh meat or vegetables, though when out of the trenches they had an ample supply. All but one of the cases investigated belonged to infantry battalions, which had these spells of trench work, and consequently diet which intermittently was deficient. By the autumn of that year (1915) the cases had practically ceased, and on inquiry it was found that the men were able to obtain fresh provisions locally, and afterwards arrangements were made for an ample supply of fresh meat and vegetables while the men were in the trenches. In the first half of 1916 a few isolated cases occurred; after that practically none.

Dr. FREDERICK LANGMEAD noted that no mention had been made of slight symptoms of peripheral neuritis, which some regarded as among the early symptoms of scurvy. Peripheral neuritis was a symptom of beri-beri, and he believed that when it occurred in scurvy it was because there was a deficiency of both varieties of the accessory food factor. Dr. VOELCKER was struck with the rapidity with which the condition developed in these cases; in stories of expeditions the occurrence of scurvy seemed much more tardy.

Colonel PICKARD said, in reply, that the men were several months overseas before the symptoms appeared; it was not a matter of one spell of four or five days, but of a succession of spells of deficient diet. The diet in the trenches was the ordinary ration *minus* fresh meat and vegetables; it consisted of bread and butter or margarine, "bully," sugar, and other oddments. Dr. G. W. LLOYD said that there were no symptoms of neuritis. He added that although, when recited, the symptoms struck one as a perfect picture of scurvy, out in the field they were by no means so clear. The symptoms were all minor manifestations, quite different from the appearance in pronounced scurvy.

Dr. S. DUTTON read a paper on "Some deficiency diseases and leprosy," in which he suggested that leprosy was, to some extent at least, a deficiency disease. The fish diet of the people who were particularly subject to the disease did not contain—except in the form of shellfish, and there probably in insufficient quantities—any carbohydrates. A diet chiefly composed of fish was not efficient, especially when the fish was salted. Dr. H. THURSFIELD agreed that there were in leprosy many features of a deficiency disease. Possibly the sporadic cases occurring in this country might be explained more easily on this ground than by the chance infection of a leprosy bacillus.

THE annual meeting and conversazione of the Harveian Society was held at the Medical Society's Rooms on Thursday, January 22nd. The following were elected officers of the society for the ensuing year: President, Dr. William Hill; secretaries, Dr. C. D. B. Hale, Mr. Kenneth Lees. The retiring President (Dr. James Taylor) then delivered an address entitled "Neurological Jottings," printed in last week's JOURNAL. The Harveian Oration will be delivered by Sir Thomas Horder on Friday, March 12th, at 8.30 p.m., on "The diagnostic significance of nerve symptoms in acute infections."

Reviews.

MAN, PAST AND PRESENT.

THE Cambridge University Press has been well advised to bring out a new edition of *Man, Past and Present*,[1] by the late Dr. KEANE, for it is the standard English book on human races and peoples. The first edition appeared in 1899 and much has been added to our knowledge of mankind in the twenty years which have elapsed since then. Every year our information regarding the geographical distribution and physical characteristics of native races becomes more exact; scarcely a week passes without an addition to our knowledge of ancient civilization, and occasionally comes authentic news of a discovery of the remains of fossil man.

It is clear, then, that the preparation of a new edition of a work which embraces all of these subjects—not to mention a knowledge of languages, of writing, religion, folklore, marriage customs, primitive culture, palaeoliths and eoliths—requires an editor with an uncommon range of qualifications. No one in England is so well fitted to supervise such a task as Dr. A. C. HADDON, round whom a strong anthropological school has grown up in Cambridge. Dr. Haddon was trained as a zoologist, but fully thirty years ago, when he held the chair of zoology in the Royal College of Science in Dublin, he became interested in the zoology of mankind, and organized anthropological expeditions to the West of Ireland and thereby laid the foundation—one which has been but little built upon—of an accurate knowledge of the Irish people. Then at a later period he led an expedition to Torres Straits and showed the world how a successful and profitable survey of native peoples should be made and how a sound science of anthropology should be built up. Clearly he is the man to continue the great work commenced by that very remarkable man who, living a secluded and penurious life in Hampstead, wrote the first edition of *Man, Past and Present*. Dr. Haddon was fortunate in having a very able pupil—Mrs. HINGSTON QUIGGIN—to relieve him of the toil involved in the revision of such a work, for the task of incorporating into the old text the discoveries of twenty years is one that very few are qualified to undertake. Mrs. Hingston Quiggin has performed her task most ably, and by giving references to all recent literature has produced for serious students of ethnology just such a reference work as they now need. In such a book we must not expect, or look for, new or revolutionary doctrines; the aim of the editors, as it was of the original author, has been to give a faithful, perhaps a somewhat cautious, reflection of the opinion held by leading experts.

The groundwork of this book is the geographical distribution of the various races and peoples of the world—a careful analysis of the physical and mental characters, and of the religion and culture of each variety being duly noted. The classification of human races originally adopted by Dr. Keane has been retained in the present edition with only minor alterations. That system was one founded on the characters of the hair; for Dr. Keane mankind fell into three main stocks or types—the woolly-haired, the straight-haired, and the wavy haired. He began his survey with the most sharply differentiated type—the woolly-haired, or negro. Planting himself, in imagination, in Ceylon, he looked southwards and saw that his woolly-haired black-skinned stock was split into two great divisions—a western, centred in the heart of Africa, and an eastern, lying scattered in the islands north and east of Australia. He drew the legitimate conclusion that these two branches were growths from a common human stem which had been rooted in Southern Asia when land distribution and climate were very different from what they are to-day.

Then, turning his back, as it were, on the Indian Ocean, he took up a stance on the Himalayas and looked northwards over the Tibetan plateau. That plateau he supposed to be the cradle of another human stock—the Mongolian, which had ultimately found its chief centre in China, and had spread until it extended from Lapland in the West to Japan in the East, from the Siberian coast in the North to the warm islands of the Pacific in the South.

Next passing to the American continent, he seems to have hesitated for a moment, uncertain as to the place of the American Indian in his scheme of classification. But he boldly faced the circumstances of the situation. He came to the conclusion that the native peoples of America were descendants of Northern Asiatics who had made their way to the new continent before the differentiation and spread of the Mongolian type. He therefore placed American aborigines in a separate group. Dr. Haddon and Mrs. Hingston Quiggin have done Dr. Keane's prescience less than justice by substituting Dr. Hrdlicka's ultra-cautious statements regarding the origin of the American Indian for the well-reasoned conclusions of the original author.

Having marked off these three stocks of humanity—the Negro, the Mongol, and the Red Indian—Dr. Keane swept the remainder into a fourth stock—the Caucasian. How heterogeneous this stock is we see by bringing together its extremes. The fair-haired Norwegian finds himself side by side with the black-skinned native of Central Africa; the Prussian, the Slav, the Englishman, are bracketed with the Egyptian, the Afghan, the ebony-skinned native of India, and the Easter Islander. Clearly Dr. Keane's Caucasian group is a hotch-potch of humanity, and certainly should have undergone a radical revision in the preparation of the present edition.

But where are we to draw the line between a member of the Masai in Central Africa and a fair-haired Highlander of Scotland? If we start from the north of Europe and make towards the Mediterranean, the tall and fair-skinned people gradually change in type until a short, dark-haired, and bronzed type is reached in the southern shores of Greece. Nor does the change stop there, for if we follow the coast lands of the Levant all the way from Greece to Egypt, we shall find no sharp break to form a border-line between one type and another, and yet at every stage of our progress the physical characters of the people are some degree different. If we ascend the Nile for some distance, and then pass to Central Africa by the Red Sea littoral and Somaliland, we shall find all the grades which link the Egyptians to the Masai and Bahima, and even then we shall have difficulty in finding a break in the line which leads us on to the Zulu. Now, the Hamitic tribes of Uganda may be most estimable people, but there must be something wrong with the scheme of classification which sets them side by side with so different a type of humanity as that found in north-west Europe.

In its ultimate solution the differentiation of mankind into races and varieties is a medical problem. Unless we agree that evolution is constantly at work and has been in operation since living things appeared on the earth, we can give no explanation of the present state of the zoological kingdom of which man is a part. We do see that under certain disordered conditions of the glands of internal secretion the physical characters of the human body can be altered, and we are therefore justified in presuming that the endocrine system is part of Nature's mechanism for manipulating the body and mind, and thus adapting mankind to his surroundings. We should expect, if Nature's mechanism for the differentiation of mankind into races is of the kind we suspect, that the most clearly evolved types should be found as the nuclei or centres of the most densely populated areas of the world. We find the purest Negro in the heart of Africa, the purest Mongolian in the real heart of Asia, and the round-headed Caucasian in the heart of Europe. Then there should be, and there are, subsidiary and intermediate centres—some of them waxing, others waning. It is when we apply such a theory to the distribution of human types and varieties that we reach a satisfying explanation of the present geographical arrangement of racial types. Sooner or later medical men, or men with a full training in the basal subjects of medical education, must apply themselves to the task of arranging mankind in natural groups, and they must begin, not by attempting to mark out the world as sharply defined areas, but start at the centres where types are being evolved and work from the clearly marked human type in the centre of evolution to the more generalized varieties at the circumference.

In such a system we shall not find the impossible mixture of human types presented to us at present under the name of Caucasian.

[1] *Man, Past and Present*. By A. H. Keane. Revised and largely rewritten by A. Hingston Quiggin and A. C. Haddon, F.R.S. Cambridge University Press. 1920. (Roy. 8vo, pp. xi + 582; 16 plates. 36s. net.)

A MANUAL OF VENEREAL DISEASES.

DR. MAGIAN in his *Manual of Venereal Diseases*[2] follows the usual practice of dividing the volume into two parts, the first part dealing with gonococcal infections, the second with syphilis. It is essentially a practical textbook, and this is as it should be, for we are told in the preface that it has been written for the use of the general practitioner. Whether all the elaborate mechanism required for the modern treatment of these disorders—and this is particularly true of gonorrhoea—is likely to be available for those dealing with occasional cases may be open to question; but the author has rightly taken the view that this does not absolve him from describing them and their use.

The first section contains much sound advice; the criticism on page 32 of the routine treatment of gonorrhoea by santal, cubebs, or copaiba, followed by some favourite astringent injection, will be endorsed by those accustomed to see the results of these methods. In the second and larger part syphilitic infections are considered; on page 169 is given a complete scheme for an average case seen shortly after the primary sore. It is recommended that a combined course of mercury and salvarsan—or one of its substitutes—extending over fifty days, should be followed by the administration of potassium iodide for a further six weeks. While such a plan is advocated by some authorities, general opinion now rather favours the continued employment of mercury over longer periods, up to two years in some cases, even where the Wassermann reaction is negative. Since relapse is by no means infrequent after the short "intensive" methods, these long courses appear to be justified.

Apart from this criticism, with which all may not agree, the views set forth should meet with general acceptance. The author's pleasant and entertaining manner of presenting his facts makes reading easy and adds to the value of the book.

NOTES ON BOOKS.

A VOLUME containing the *Minutes* of the General Medical Council[3] and of its various committees for the year 1919 has been issued. The proceedings of the Council were reported from time to time in our columns. In appendices, occupying about half the volume, reports presented by various committees are given, together with the usual financial statement and report. The Council has also issued a *General Index*[3] to its minutes for the years 1903–1919. The convenience of these periodical indexes is well known to all interested in the work of the Council.

The new number of *Medical Science*[4] (March, 1920) contains reviews of recent literature on typhus, dysentery, alimentary diseases, and diseases of the liver, and on the surgical treatment of bronchiectasis and pulmonary abscess, and the management of unreduced obturator dislocations of the hip. These reviews are followed by some seventy pages of abstracts. It is announced that an index to Volume I will be issued with the first number of Volume II.

The *British Journal Photographic Almanac* for 1920,[5] now in its fifty-ninth issue, is full of information essential to working photographers all the world over. The amateur photographer also will find much to instruct him in this volume. We wish the *Almanac* continuance of the wide circulation and success it deserves and has enjoyed.

The Letters of a Widowed Physician to his Daughter,[6] issuable to her at puberty, maturity, marriage, and motherhood, contain a quantity of sound advice conveyed with adequate emphasis and excellent brevity. There is a great demand nowadays for the early education and enlightenment of boys and girls in all sorts of matters that not so many years ago they were left to learn by chance. These *Letters* appear quite suitable for the perusal of the many girls for whom they have been written.

[2] *The Practitioner's Manual of Venereal Diseases.* By A. C. Magian, M.D. London: William Heinemann (Medical Books), Limited. 1919. (Demy 8vo, pp. viii + 215; 61 figures. 10s. 6d. net.)

[3] London: Constable and Co., Ltd. (12s. and 2s. 6d. respectively.)

[4] Annual subscription 21s.; a single number 2s.

[5] *The British Journal Photographic Almanac and Photographer's Daily Companion, 1920.* Edited by George E. Brown, F.I.C. London: Henry Greenwood and Co., Ltd. 1920. (Paper cover, 1s. 6d. net; cloth bound, 2s. 6d. net.)

[6] *The Letters of a Widowed Physician to his Daughter.* London: Baillière, Tindall, and Cox. 1919. (Fcap. 8vo, pp. 64; 2s. 6d. net.)

The fourth edition of DA COSTA'S *Principles and Practice of Physical Diagnosis*[7] has been revised and enlarged. It is designed for the use of medical students, is clearly written, conservative, and covers the ground adequately. The first seventy pages deal with the methods and technique of physical examination in general; then follow two chapters on the examination of the thorax and broncho-pulmonary system, and after that the various diseases of this system are described in detail from the point of view of physical signs. The next two chapters are given to the examination of the cardio-vascular system and its diseases; the last seventy pages of the volume describe the examination of the abdomen and its viscera. The description of the physical signs is assisted in many cases by photographs of *post-mortem* specimens admirably reproduced, and by photographs of typical cases taken from the life. We doubt, however, if it is really desirable to employ so many photographs of the nude in exhibiting mere diagrams of physical signs as is the author's practice in this volume.

[7] *Principles and Practice of Physical Diagnosis.* By John C. Da Costa, Jr., M.D., Ex Associate Professor of Medicine, Jefferson Medical College, etc. Fourth edition, thoroughly revised. Philadelphia and London: W. B. Saunders Co. 1919. (Med. 8vo, p. 602; 225 figures. 20s net.)

A PHYSICAL CENSUS OF THE MALE POPULATION.

VOLUME I is published this week of the Report upon the Physical Examination of Men of Military Age by National Service Medical Boards, covering the period from November 1st, 1917, to October 31st, 1918.[1] In order to understand the genesis of this important work it is necessary to recapitulate briefly the recent history of recruiting in this country, and the phases through which it has passed.

THE PRE-WAR STANDARD.

Before the war we had a voluntary army, and only men of good physique and free from any physical defect were accepted for enlistment. Recruits were required to possess all the following physical qualifications:

Good intelligence; a high standard of vision with either eye; good hearing; speech without impediment; no glandular swellings; capacious and well formed chest; sound heart and lungs; freedom from rupture in any degree or form; well formed and fully developed limbs; free and perfect action of all the joints; well formed feet and toes; no congenital malformation or defects; no sign of an impaired constitution; and a sufficient number of sound teeth for efficient mastication.

Men presenting any of the following conditions were rejected:

Indication of tuberculous disease; constitutional syphilis; bronchial or laryngeal disease; palpitation or other diseases of the heart; generally impaired constitution; under standard of vision; defects of voice or hearing; pronounced stammering; loss or decay of teeth to such an extent as to materially interfere with efficient mastication; contraction or deformity of chest or joints; abnormal curvature of spine; defective intelligence; hernia; haemorrhoids; varicose veins or varicocele if severe; inveterate cutaneous disease; chronic ulcers; fistula; traces of corporal punishment; or any disease or physical defect calculated to unfit them for the duties of a soldier.

It was laid down that the height, weight, and chest measurements of each recruit should accord with each other and with his age in conformity with the official table of standards.

It will thus be seen that the medical examination of recruits was a simple and straightforward matter, as the examiner was only required to certify that the candidate was possessed of certain definite physical characteristics and was free from other equally definite defects. Each recruit who fulfilled these conditions was passed "fit" and accepted for service. Each recruit whose physical condition did not conform to these standards was regarded as "unfit" and not accepted for service. In short, the army only accepted for service the best human material judged by a high standard and declined all recruits who did not conform to this criterion. The examination itself was carried out by medical officers of the Regular Forces and of the Special Reserve and Territorial Forces (under certain conditions) and by civilian practitioners specially appointed for the purpose; it is evident that theirs was a simple task which required only ordinary attention to the

[1] Cmd. 504. H.M. Stationery Office, 1920. To be purchased through any bookseller. Price 2s. 6d. in paper covers; 6s. bound.

regulations and a straightforward physical examination for its efficient performance; the definite question "fit" or "unfit," without qualification, was capable of a definite answer in each case.

The Outbreak of War: Recruiting Chaos.

Such was the position of affairs at the outbreak of war in August, 1914. Immediately there was a tremendous rush of recruits to the colours, and it was inevitable that they should be dealt with on the existing, almost ingenuously simple, system, which had to be expanded precipitately in order to cope with the immense requirements of the situation. The result was chaos; tens of thousands of recruits were besieging the recruiting offices to get into the army; the army was in urgent need of men, and doctors were called upon to "examine" as many as 200 recruits per diem; the whole tendency of the situation was to expedite and reduce to a minimum the medical examination. The medical problems involved had been visualized no more than the purely military problems. It is becoming difficult now even to remember the immensity of our unpreparedness for the war, and in no department was this unpreparedness greater than in that of recruiting. In these circumstances thousands of men were passed "fit" into the army every week without any medical examination worth the name. As the weeks went on the army itself began, as was inevitable, to realize that it was confronted with a new problem—that the old simple standard by which the authorities had selected fit recruits was no longer applicable, and that they were being flooded with men who after a few weeks' or months' military service broke down and contributed an ever-growing quota to the sick return and casualty lists.

In October, 1915, the "Derby scheme" came into operation; men were placed in groups according to their age and marital status, and the different groups called up as required. By this time public enthusiasm for military service had coo'ed down considerably, and instead of pressing for admission to the army men were beginning to raise the question whether they were or were not physically "fit." In response to the public criticism of the methods of medical examination, medical boards were established by the War Office at the end of 1915 to replace the examination by single medical officers. Early in 1916 appeared the first instructions for the classification of recruits by categories; this marked a great advance in the realization of the recruiting medical problem, though the fact that it was proposed that 200 examinations should be carried out per diem by each board shows clearly how much there still remained to be learnt upon the subject.

On January 27th, 1916, the first Military Service Act, which provided for the compulsory service of unmarried men between the ages of 18 and 41, became law; this was followed on May 25th by Session 2 of the same Act, which extended the obligation to all married men. Throughout that year various modifications of the categories were introduced, and their number was increased. On looking back, however, it is evident that there was no real uniformity in the practice of different recruiting boards, and little real appreciation of the difficulties and importance of the problems presented by the medical examination and classification of recruits. The inevitable dissatisfaction with this state of things was brought to a climax by the Review of Exceptions Act, April 5th, 1917. Under this Act a very large number of men previously exempt from military service were called up for examination, the methods of which called forth a storm of adverse criticism. The result was the appointment of the Shortt Committee, which in due course recommended to the House of Commons that recruiting medical boards should be placed under civilian control.

The National Service Organization.

By this time the difficulties attending the provision of recruits for the army were recognized, and also the existence and vital importance of the man-power problem. The great fundamental industries of the country, including munition works, had to be adequately manned, and it was evident that one of the principal factors in deciding the issue of the war would be the extent to which each of the belligerents succeeded in allocating every available man to the work in which he would be most useful. A special civilian department—the Ministry of National Service—was reconstituted under Sir Auckland Geddes to regulate the man-power of the country, and entered upon its task on November 1st, 1917, with Sir James Galloway as Chief Commissioner of Medical Services, at the head of the Medical Department. Great Britain was divided up into ten regions as follows:

Northern, North-Western, Yorkshire and East Midland, South-Western, South-Eastern, London, East Anglian, West Midland, Scotland, and Wales.

In each region a commissioner of medical services was appointed to administer the medical work. These regions were further subdivided into areas which generally corresponded to counties, and a deputy commissioner of medical services was appointed to administer the medical work in each area under the commissioner of the region. The requisite number of boards was set up in each area to examine recruits, the doctors of the board being drawn from a panel of selected local practitioners so as to spread the work, and, by employing local doctors on a part-time basis, to economize to the utmost the medical man-power of the country.

Each board consisted of four members and a chairman, each of whom saw every recruit at some stage in his examination. It was recognized that much of the difficulty of the past had been due to the complex nature of a category which was partly medical and partly administrative; the new recruiting boards were therefore instructed that every recruit was to be placed in one of the four grades in accordance wholly and solely with his physical condition, without regard to any administrative consideration, such as his fitness for any particular arm or branch of the service. It is evident that this definition of the duties of the medical boards—namely, to grade the men brought before them solely in accordance with their physical condition—laid the foundation of a physical census of the men of military age throughout the country, and it is the collective result of these examinations that forms the basis of the present report.

SCOPE OF THE REPORT.

The first volume of the Report consists of 159 quarto pages, with a frontispiece, many charts and graphs throughout the text, a map, and five beautifully executed large coloured graphs. There is ample material to justify division of the Report into two parts, for the present volume contains an enormous mass of information obviously representing a still larger mass of crude material which has been condensed, sorted, and tabulated. The second volume will analyse in detail the disabilities for which a quarter of a million men were found totally and permanently unfit for military service, and the reasons for which men were placed in Grades II and III; it will present also anthropometrical observations upon large numbers of men in the various parts of the country, together with such information as is available upon the physique of women examined for the various women's corps.

The frontispiece shows examples of men in each of the four grades; this, with the glossary of medical terms, will enable the general reader to follow the argument of the text and give him at the outset a correct idea of the main characteristics of the men in each grade. The prefatory letter, addressed by Sir James Galloway to Sir Auckland Geddes, explains briefly the origin of the whole inquiry; by reading between the lines it is sufficiently evident how much valuable work lies behind this report. The concluding paragraph observes truly that it represents the only survey of the physical fitness of our male population in the history of our country, and should stimulate interest in the vital problem of the health of the nation.

The actual contents are divided into two main parts. The first consists of an introduction, describing briefly but clearly how it came about that every man called up under the Military Service Acts after November 1st, 1917, was placed by National Service Medical Boards in one of four grades in accordance with his physical condition alone. Then follow four chapters upon (1) grading as a criterion of health, (2) the comparison and analysis of grading results, (3) the relations of occupation and health, (4) the causes of low grading and rejection.

Grading and Health.

Immediate difficulties arise in considering grading as a criterion of health. Physical fitness is a complex quality

incapable of exact measurement. Furthermore, certain disabilities, such as deformities of the feet, are serious from the standpoint of grading for military work but of slight account in considering physical fitness as regards life insurance. This necessity for looking upon disabilities in their military aspect has to be kept in mind throughout a perusal of the Report, and whilst the general fitness of recruits from a civilian standpoint is also fully investigated and commented on, it must be remembered that a certain number of men were necessarily placed in lower grades than would have been the case had the grading been based solely on their capacity for carrying on efficiently their own civilian employment. Nevertheless, even after allowing for this factor, it is sufficiently depressing to find that only 36 per cent. of the men could be placed in Grade I as being up to the full normal standard of health and strength for their age, and that rather more than 10 per cent. were judged to be totally and permanently unfit for any form of military service, even when it was assumed that if a man was physically fit for any civilian work he was fit for some sort of army work.

Broadly, the men examined during the last year of the war were either those combed out of protected industries, those refused further exemption by tribunals, and youths attaining the age of 18, or, on the other hand, men previously rejected or between 43 and 51. The standard of physical fitness of the former and larger group will be above the average and of the latter below the average, so that the argument that the results of these examinations give a fair picture of the manhood of military age seems to be justified.

It is clearly a first necessity in such an inquiry to have some definite idea as to what ratio the different grades should bear to each other in a community of satisfactory average physique. In order to attempt an accurate estimate of this required ratio the reports of the work for the first eight months were submitted to Professor Arthur Keith, whose memorandum is included in the Report. The general result of his most interesting study of the problem is that a normally healthy community should produce 70 per cent. Grade I, 20 per cent. Grade II, 7.5 per cent. Grade III, and 2.5 per cent. Grade IV men. The actual percentages for these grades, as shown in the total results of 2,425,184 examinations, were 36, 22.5, 31.3, 10.2, indicating only too plainly the widespread prevalence of a physique much below that which ought to exist in a healthy community. Expressing these percentages in actual figures we find a shortage of 825,000 Grade I men and an excess of 575,000 Grade III men, and of 190,000 Grade IV men—truly a disquieting result.

The general physique of any group of men may be expressed by the estimation of what Professor Keith calls the "index of fitness." Without detailing the method by which this index is calculated it may here be stated that for a normally healthy group this index should be 89.3. The actual index for the whole of the United Kingdom was found to be 70.9, a deficit of 18.4 on Keith's standard. A table of graphs is given showing the total grading, numbers, and percentages for each region, and from this it is seen that the lowest index of fitness was in the London and South-Eastern Region—namely, 66.7—and the highest in Wales—namely, 76.3.

Chapter III contains an able summary of the relations of occupation to health, miners and agriculturists being specially considered. These two occupations head the poll in grading results, and give indices of fitness closely approximating to Keith's standard; whereas tailors, for example, are far below this standard. The application of this standard of fitness to various trades is very illuminating in its results and affords a valuable method of expressing clearly and concisely the relation of occupation to health.

The causes of low grading and rejection are considered from a general point of view in Chapter IV, especial emphasis being laid on the deplorably low standard of health found amongst youths. From the examination of 260,000 lads of 18 it was found that, in contrast with the results to be expected from Keith's standard, there was a deficit of nearly 13,000 Grade I and an excess of over 6,000 Grade IV youths. In other words, there were almost twice as many youths totally and permanently unfit for any form of military service as there should have been.

Comparison of Regions.

The second part of this Report gives the detailed information upon which the general conclusions of the first are based; it consists of statistical and general reports furnished by the Commissioners of Medical Services and other medical officers of the various regions into which the country was divided for administrative purposes. Each regional report contains a valuable collection of statistical and general medical detail judiciously selected and arranged from the bewildering mass of isolated facts which accumulated in the course of the work. The sifting of the grain from the chaff in order to present the essential facts in clear and intelligible form must have involved immense labour on the part of the medical officers concerned, and they are to be congratulated on the clarity of the statistical tables and graphs and on the way in which they have brought to life these dry bones of figures, infusing them with the vital energy of their own zeal for research.

The report of the Commissioner of Medical Services for the London and South-Eastern Region is conspicuous for the wholly admirable series of coloured charts with which it is illustrated, reflecting great credit on the foresight and enthusiasm of the Commissioner of Medical Services and his staff. So comprehensively and clearly do these charts bring out the salient features of the inquiry that but little textual elaboration is necessary, and they constitute a masterpiece in the art of graphic presentation of complicated facts.

An analysis of about 230,000 consecutive examinations was made in this region, the basis of the analysis being a division according to occupations, diseases, and ages, the inter-relation of these factors being exhaustively worked out. It was found necessary to limit the more detailed analysis to men placed in Grades III and IV only, but important figures are also given relative to Grades I and II.

Special attention was directed in the London areas to any evidence obtainable as regards a correlation between particular diseases and overcrowding associated with bad hygienic conditions. An area in the East End of London, comprising Mile End, Whitechapel, Stepney, London Docks, Bethnal Green, and Bow was mapped out as a "Black List" area and all facts relative to this area were separately analysed. The area thus delimited corresponded closely with the distribution of the alien population, and thus an indication of the effect of racial factors was also obtained. In general it was found that the "Black List" area compared with other areas showed a higher percentage of all diseases, and especially of pulmonary tuberculosis and other respiratory diseases. This is according to expectation, and affords further evidence, were such required, of the urgent need of drastic action in regard to housing and sanitation. A further disquieting, though less commonly appreciated, fact brought out in these statistics is the unhealthiness of the group of trades comprised under the heading "barbers," and including Turkish bath attendants, masseurs, manicurists, chiropodists, and complexion specialists. This trade group showed the highest percentage in relation to almost every disease—an unwelcome thought when one recalls the many opportunities afforded to these trades for conveying infection by close contact with their customers.

Venereal Disease among Recruits.

Venereal diseases are seen to have exerted only a very slight influence as a factor in relegating a man to Grade III or IV, and it is noticeable that the impression given by the reports from all regions is that the prevalence of venereal disease is small. It must be observed at once that these returns furnish no real evidence on this point; men were examined primarily with regard to diseases and disabilities which limit or abolish military efficiency. Active venereal disease, granted that appropriate treatment is given, rarely has such an effect except for a short while, and men with active venereal disease were placed in the grade for which they were otherwise suited, and recommended to have their disease properly treated; if they were called up for service at once, they were admitted straight away into a military hospital. Furthermore, it must be remembered that, except in its acute stages, the diagnosis of venereal disease requires considerable time and skill, with the aid of a fully equipped pathological laboratory, and rapid accuracy in its diagnosis, even by such methods, has only

been attained since the beginning of the war. It was no part of the duty of medical recruiting boards, faced with the urgent necessity of examining and grading tens of thousands of men as rapidly as possible, to make any special investigation into the general prevalence of such diseases. In fact, it is evident that this Report furnishes as little direct evidence of the prevalence of venereal disease, as it does of the exanthemata or other acute infections.

The real evidence regarding the prevalence of venereal disease, as brought to light in this Report, is to be found in the statistics as to the health of older men, in the frequency with which they were found to be suffering from diseases of the circulatory and nervous systems, and other disabilities in the causation of which venereal disease plays an important part. Further, the records of venereal disease in the army show clearly the extent to which latent disease, which could not be detected by the boards, became manifest under army conditions.

In the section devoted to the London and South-Eastern Region an interesting report is also furnished in regard to a period prior to the Military Service Acts. This is important in connexion with the question as to how far the men examined during the last year of the war may be regarded as a fair sample of the population. Defective feet were found in 23.8 per cent. of these recruits, at least 18 per cent. of which were apparently due to causes easily preventable in early life. No fewer than 42.5 per cent. suffered from dental defects affecting their general health, again largely as the result of early neglect. An instructive table is given, showing the relative grading percentages of Russian Jews as compared with British recruits, 70.1 per cent. of the latter being up to Grade I or II, whereas only 30.4 per cent. of the former attained that standard.

"*Overtime*" *Research.*

The Commissioner of Medical Services for the North-Western Region, comprising Lancashire and Cheshire, presents in his report a long series of most detailed and comprehensive statistical tables. These deal chiefly with the work of the Liverpool Boards, and the medical officer in charge of them may be complimented on the minute accuracy with which his records were kept. In reading these reports on the work of National Service Medical Boards it is easy to forget the circumstances under which the work was done. The primary, and indeed from the official War Office point of view the only, duty of the Boards was to extract from the male population a maximum number of men physically capable of fighting, or assisting to fight, the Germans. The compilation of any other statistical returns beyond those dealing directly with this necessity (and they were no small number in themselves) was subsidiary and outside the ordinary daily work. No official time or place was recognized for research of a general medical or statistical nature; "there was a war on," and research must take a back place. Such was the general and natural attitude of the authorities; though Commissioners of Medical Services were directed to concern themselves with the local conditions and social circumstances of the population in regard to their bearing on the health and physical fitness of the people, it is manifest that this unique and fleeting opportunity of collecting and collating invaluable information was seized only when the personal energy and enthusiasm of individual medical officers led them to devote their scanty leisure to this work. It is therefore the more remarkable that, with but two exceptions, all the regions are able to show results which must have cost much labour out of office hours, and show that the medical officers concerned realized the unique opportunity presented for research. In the North-Western Region, for example, the age-incidence of tuberculosis, pulmonary and non-pulmonary, is fully worked out, and an elaborate investigation into the frequency distribution of height, weight, and chest measurements is set forth in full.

The fact that, by specially analysing the statistics relative to youths who had just attained military age, information could be obtained in regard to a soil which had not been dug over by previous recruiting was fully made use of, and the details given of physique and disabilities in youths provide a basis upon which the general health of the young men in this region can be accurately gauged. The results of this analysis are sufficiently deplorable. "Out of 1,070 recruits of 18 years of age no fewer than 451 (equal to 42 per cent.) were less than 112 lb. in weight, and 142 of them (equal to 13 per cent.) were less than 100 lb. in weight." Such figures only need to be mentioned to bring home with full force the alarming and widespread existence of a youthful C3 population.

The sad results of so low a standard of health amongst youths are further exemplified in a memorandum on the health of men over 43 years of age in Manchester and Stockport. Here again a "virgin soil," unaffected by previous recruiting, was studied, and the conclusion was arrived at that "the aver ge man here is, for military purposes, an old man before he reaches the age of 40." Very severe varicose veins were exceedingly common, as were also rheumatic troubles and cardiac disabilities. In Salford, out of 1,877 cases, only 8 per cent. showed no disability of any sort! The writer of the memorandum suggests that the root cause of this low standard in health is to be found in the early age at which boys commence hard and exhausting work, no opportunity being given for any form of physical culture either as games or otherwise. Unfortunately, these lads accept this state of affairs with dull contentment, and appear to take almost a pride in their disabilities.

The Commissioner of Medical Services for the West Midland Region made a special study of military age in its relation to weight, height, and grading, and also the details of occupation and disease, with special analysis of tuberculosis and venereal disease, amongst the men rejected (Grade IV). The results are shown in a series of tables and graphs, each being subdivided into the ten main areas of the region—namely, Birmingham, Burslem, Dudley, Worcester, Coventry, Shrewsbury, Hereford, Leamington, Walsall, and Wolverhampton. Nearly 233,000 men were examined during the twelve months (November, 1917, to November, 1918) to which the report refers. Reference must be made to the tables and graphs themselves in order fully to appreciate the intricacy of the investigation and the admirable way in which the essential points brought out therein are discussed. In regard to the figures for weights and heights comparison is made with previous work on the subject by the Anthropometrical Committee of the British Association in 1883, and it is regrettably clear that the standard of weight and height in this region falls far short of that previously worked out (in much smaller figures) for the average general population by that Committee. The conditions of labour in the Potteries and in the brass and allied trades in Birmingham are discussed at some length, and the conclusion is reached that the general conditions in these trades are definitely inimical to health, and, combined with overcrowding in houses which are damp and dirty, produce a high percentage of diseased and disabled individuals. The need for organized physical culture is emphasized here as in the North-Western Region. A report is given from a tuberculosis officer who examined 874 cases referred to him. He calls attention to the large proportion (15 per cent.) of those suffering from tuberculosis who were unaware of the fact, though in a good many the disease was fairly advanced, and considers that there is a serious danger to the community in this ignorance.

The report on the Yorkshire and East Midland Region is chiefly concerned with the work done in the Leeds and Barnsley areas, the D.C.M.S. of Leeds commenting especially on the bad housing conditions in that area, there being no fewer than 60,000 "back-to-back" houses. He considers that the Jews in Leeds are becoming "a menace to the welfare of the city," on account of their lack of sanitation and the prevalence of tuberculosis amongst them. An interesting note is made on the prevalence of an artificially produced glycosuria amongst recruits. He estimates that there must be 10,000 to 12,000 sufferers from tuberculosis in Leeds. As regards the Barnsley area, an exhaustive analysis was made of the mental and physical disabilities of 1,844 men placed in Grade IV. Here again pulmonary tuberculosis is very prevalent, accounting for over 25 per cent. of the rejections, and amongst them 2 were found to be retailing milk, 35 were clerks, 4 hairdressers, and 5 school teachers, all presumably propagating infection through their work. The Commissioner of Medical Services of the region makes a detailed criticism of the memorandum by Professor Arthur Keith, given in Part I of the Report, and specially discusses the

causes of difference in the gradings in Leeds and Sheffield. The criticism is interesting and relevant, and an alternative method of estimating physical fitness is given at some length.

The report on the Eastern Region, though comparatively short, is very concise, and contains much useful and interesting information in regard to the areas of the region. Tuberculosis here accounted for about 13 per cent. of the rejections, whilst cardiac disabilities were responsible for 11 per cent. As was found in the London and South-Eastern Region, there is here also evidence that the majority of cases of defective feet could have been prevented by intelligent footwear and treatment in early life. Housing conditions in the Oxford area are described as very unsatisfactory, and in Buckinghamshire it was remarked that whereas the young farm labourer of 18 to 21 is usually of splendid physique, the same class of man at 40 is middle aged, and suffers from such disabilities as myalgia, arthritis, varicose veins, hernia, and flat-feet. The statement made that Buckinghamshire is "remarkably free from venereal disease," though possibly true, is not, however, supported by any adequate evidence.

No written report is given on the work in the Northern and South-Western Regions, but graphs showing the gradings, actual numbers and percentages for each month of the period November 1st, 1917, to October 31st, 1918, are given in respect of both regions.

The Scottish Findings.

Scotland, on the other hand, is dealt with in a full and comprehensive report. Visual defects were analysed in regard to 16,000 examinations in the Edinburgh area, and, taking $\frac{6}{12}$ and better in both eyes as an average standard of efficient sight, it was found that 23.8 per cent. fell below this mark. High myopia was common and chronic blepharitis widespread; ten cases of trachoma were recorded. Special stress is laid on the progressive nature of myopic defects, a factor of importance in subsequent claims for pension, and the large number of eyes damaged by corneal nebulae and scars following on the common eczematous keratitis of childhood, furnishing another example of adult disability due to preventable disease in early life. One thousand entries in the recruiting register of Glasgow were summarized, and, as in other industrial areas, the prevalence of poor physique and the need for systematic physical culture is strikingly shown.

The recruits from Ayrshire and Wigtownshire, 18 432 in number, were studied as regards the relation of age and occupation to grading, and full tables of the results obtained are given. It is a pleasant contrast to the usually depressing results of these investigations to find that, at least as regards the Ayrshire miners, there is a predominance of high mental and physical efficiency, due, it is considered, to improved conditions of labour. In general the standard of physique in these areas was fairly good, and, apart from their fitness for military life, it was considered that 67.6 per cent. were fit for ordinary civilian occupations, 23.5 per cent. moderately handicapped, and 8.8 per cent. seriously handicapped. Severe varicose veins are again noted as very common.

A chairman of a medical board dealing with industrial areas in Scotland, notably Dundee, Perth, Fifeshire, and Stirlingshire, records his impressions, and once more the widespread occurrence of preventable disabilities, the bad influence of early full-time labour amongst boys with a lack of good housing accommodation and opportunities for recreation and sports, are emphasized. Dealing with a period prior to the institution of National Service Medical Boards, namely, from August, 1916, to May, 1917, a lengthy analysis is given of the physical defects found amongst 10,000 men between 18 and 41 years of age in Scotland, drawn from both agricultural and industrial districts. Only 20 per cent. were found free from noteworthy physical defect. Valvular defects of the heart were found in 2.4 per cent., varicose veins in 5 per cent., pulmonary tuberculosis in 1.07 per cent., and deformities of various kinds in 7.4 per cent. These are only a few samples of the diseases considered. An interesting note on malingering is added showing that it usually consisted of the exaggeration of a slight defect.

Wales: the Healthy Miner.

The Commissioner of Medical Services for Wales, in dealing with recruiting during the period November 1st, 1917, to June 30th, 1918, divides it into four phases according to the order in which miners and other men in protected industries were called up. Miners as a whole proved to be an excellent type of recruit. They were, however, whilst otherwise fit, very subject to affections of the metatarso-phalangeal joints, hypertrophy of the heart, the results of old fractures, and miners' nystagmus. The occurrence of nystagmus varied with the type of mine, being very prevalent when safety lamps had been used, the light being then more or less fixed, with the result that the miner constantly changes his visual accommodation as he moves about, in contrast to what occurs when a steady illumination is provided by a naked light carried about by the miner. The Commissioner considers that it is extremely doubtful whether a man suffering from any degree of nystagmus should be passed as fit for combatant work on account of its liability to become severe at any time and the great difficulty in vision experienced in dim light.

Agriculturists in Wales provided a good type of recruit, especially those from the pasturage farms. In spite, however, of the good general physique of recruits from Wales, as far as mining and agriculture are concerned, there appeared to be good evidence that diseases of blood vessels and valvular disease of the heart were alarmingly common, while the industrial regions again demonstrated the evil effects of long hours and too severe labour at an early age in producing premature age and general deterioration of physique. The results of grading of this region are clearly set out in graphic form, enabling them to be easily and rapidly comprehended.

THE ASSOCIATION OF CERTIFYING FACTORY SURGEONS.

THE Council of the Association of Certifying Factory Surgeons, of which Sir Thomas Flitcroft of Bolton is now President, has published a report for the years 1914–19 inclusive. As with other associations of a similar character, active operations were suspended to as great an extent as possible during the war; Dr. J. Hedley occupied the position of president for three years in succession, and Dr. Thomas Watts for two years in succession. The Council, however, despite war handicaps involving the whole profession, was compelled to resume its activities on three separate occasions.

In 1916 a very strenuous resistance was made to the abolition of accident reports when the Police, etc. (Miscellaneous Provisions) Bill was brought before Parliament. With the assistance of the British Medical Association and many members of Parliament, the objectionable clause was fought in the House of Commons through each stage of the bill, and, although it was somewhat modified in order to retain the investigation of poisonings due to accident and to allow the Secretary of State to schedule any particular class of accident for investigation, when the bill was passed this important function of the certifying surgeon had practically disappeared. The British Medical Association organized an opposition in the House of Lords, but the spirit of economy was even stronger in that House, and no further alteration was made in the clause as it left the House of Commons. The case for compensation was subsequently laid before the Home Secretary, who, however, stated that the terms of appointment precluded compensation. By this action of the Government certifying surgeons as a whole lost £12,000 per annum, and those responsible were no doubt able to congratulate themselves on effecting a very valuable war economy. Nevertheless, it was rather a severe tax on a small section of the medical profession.

In 1918 the Council were stimulated to further action, owing to the diminishing value of the fees paid for certifying and other work. It was felt that the basis of payment for certifying, which was fixed in 1833 at 6d. a case, was wofully inadequate to meet the present day increase in cost of commodities. A conference with the Chief Inspector of Factories was held in July, 1918, when the circumstances were fully laid before him. Since then it is pointed out that the Home Secretary had made no move whatever to assist these doctors by raising this ancient scale of fees or by ordering a bonus. It is admitted that certifying surgeons can, under Section 124 of the Factory Act of 1901,

make agreements with employers respecting the amount of fee to be paid, and it is stated that such arrangements have in many cases been made. This power is, however, not regarded as sufficient, in face of the fact that employers have the right to adhere to the minimum scale scheduled in the Act, and it is held that there should not be any variation of fee in different parts of the country, the necessity for increase being equally pressing everywhere. The Council is of opinion that the financial stress is much greater at the present time than was the case when the interview with the Chief Inspector took place, and that the suggested increase of fees then made would be quite insufficient to meet the needs of to-day. It is pointed out that the Civil Service scale of grants for local Government technical officials now amounts to a bonus on ordinary remuneration of £60, *plus* 30 per cent. of the income, and that it cannot be regarded as fair that certifying surgeons, who are undoubtedly Government officials, should be expected to carry on with fees established in 1833. At the recent annual meeting, when the position was laid before the members, the opinion was practically unanimous that nothing less than doubling of the statutory amounts allowed would meet the situation, and we are informed that representations on these lines have now been made to the Home Office.

The report describes the action taken by the Council when the Ministry of Health Bill was before Parliament, and expresses satisfaction with the intention of the Government to transfer the Factory Department to a Ministry of Employment.

The honorary secretary is Dr. W. F. Dearden, 168, Trafford Road, Manchester.

PURE AND CLEAN MILK.

THE medical profession is in a dilemma with regard to the prescription of milk. The dilemma is this, that, on the one hand, it is generally agreed that for infants fresh cow's milk is the best available substitute for mother's milk, and that it is a most valuable, almost indispensable, part of the diet of young children. On the other hand, cow's milk, as ordinarily available, has dangers of its own; there is the risk of tuberculosis and the risk of contamination by other organisms, especially those of the *B. enteritidis sporogenes* and organisms of the food-poisoning group, but including the enteric group, during milking and the subsequent manipulations. It is difficult to eliminate these risks. The fact that tuberculosis is exceedingly common among our herds has to be admitted, and the difficulty of eliminating it faced. Under ordinary dairy farm conditions milk is always subject to faecal contamination and almost without exception contains *B. coli*, the contamination being often heavy, even in the early stages, and rapidly increasing under trade and domestic conditions. Though difficult, it is not impossible to eliminate these risks; scientific management is necessary, a herd free from tubercle must be obtained, and every one employed on the dairy farm must be imbued with the principles by the observance of which success can alone be attained. In practice the difficulty hitherto has been, as a rule, so great that the medical profession has been compelled to advise boiling, pasteurization, or sterilization as the only safe course. By bringing milk to the boil a certain number of the organisms in it are destroyed, and by boiling for two or three minutes all harmful organisms are destroyed, though some spores may survive. There is evidence that if the milk is of good quality and free from gross contamination to begin with, and if the distribution and method of feeding is under careful medical supervision, infants will grow at about the normal rate after the fourth month if fed on milk which has been brought to the boil. But these are serious "ifs," and there are questions as to nutrition of the infant or child, and as to the relation of such diseases as rickets to the condition of the milk given, at present undecided. It is obvious that if contamination of the milk could be avoided—that is, if it were both clean and free from the infection of tubercle—it would be in every way better. No risk need be run if the collection and distribution of milk is so conducted that the need for submitting it to such processes as boiling is avoided.

It is possible to supply a clean fresh milk, free from the virus of tubercle or any other disease, and certain public-spirited milk producers in this country have succeeded in doing so, and are anxious that other dairy farmers all over the country should follow their example. A meeting called by a few of the leaders in the matter * a short time ago was attended by a number of farmers all keen to observe the conditions required to be fulfilled and to increase the supply of pure clean milk until it becomes sufficiently large to be within the reach of all classes.

The Food Controller, acting in consultation with the Ministry of Health and the Scottish Board of Health, has been granting licences permitting the use of the designations "Grade A" and "Grade B" in connexion with the sale of milk of high hygienic quality. This system will come to an end on March 14th, and will be replaced by a modified plan comprising regulations not less strict. The Food Controller will in future issue licences for two sorts of milk—"Grade A milk" and "Grade A (certified) milk"—and no person will be permitted to use these designations except under licence by the Ministry of Food.

Grade A Milk.

Grade A milk is milk produced under specially clean and hygienic conditions from a herd free from tuberculosis. The licence requires that the herd from which the milk is obtained must contain no cow or any bovine animal kept in contact with the herd which has not passed the specified tuberculin test, and certain other prescribed requirements. While the licence is in force every facility must be afforded for taking samples of the milk of any cow in the herd, or of the mixed milk of the herd, or of any milk sold under the licence at any time or place that may be thought necessary during the progress of the milk from the producer to the consumer. The farm must be open to inspection by a representative of the Ministry of Health or in Scotland of the Board of Health, or a local authority acting on behalf of the Ministry or Board, and must attain a certain standard in respect of equipment and methods. The licence in the first place is granted after such an inspection, and if at a later inspection the standard is found to have deteriorated the licence may be withdrawn. The milk must be cooled on the farm and consigned in a sealed container having a label giving the address of the farm, the day of production, and whether from the morning or evening milking. Dealers, other than producers, who desire to obtain a licence to sell milk under the designation Grade A milk must show that their equipment and methods are found satisfactory on inspection, that the milk is delivered to the consumer in the vessel in which it is received, or in bottles sterilized by steam, filled on the premises of the retailer and closed by discs or caps, showing the day of production.

Grade A (Certified) Milk.

In the production of Grade A (certified) milk certain additional precautions are enforced, and it is this certified milk which will probably have most interest for members of the medical profession. The milk after cooling is bottled on the producer's premises in sterilized bottles, and labelled to show the day of production and the time of day. The milk on examination at any time before delivery to the consumer must not contain *B. coli* in one-tenth of a cubic centimetre (in each of two tubes) or more than 30,000 bacteria per cubic centimetre. Further, the milk must not be delivered to the consumer as Grade A (certified) milk more than two days after the day of production. We are told, however, by an independent observer that milk fulfilling these conditions will in fact keep sweet much longer. This Grade A (certified) milk must be delivered to the purchaser in the bottles in which it has been received from the producer, with caps intact.

Tuberculin Tests.

The conditions with regard to the application of tuberculin tests on the health of the herd laid down by the Food Controller with the concurrence of the Ministry of Health and of the Scottish Board of Health are rigid; they include careful record of the temperature after injection

* One of the first dairy farms conducted on the principles governing the production of Grade A (certified) milk was that of Mr. Wilfred Buckley, Director of Milk Supplies, Ministry of Food. Milk of this quality is known to some physicians as Moundsmere milk, from the name of his farm, but milk is now being produced under the required conditions at a number of dairy farms, including those of Viscount Astor and Lord Elveden. It is hoped that the number of farms producing Grade A (certified) milk will soon be largely increased.

as compared with the normal. The name of the manufacturer of the tuberculin must be stated, and no animal injected with tuberculin within the previous thirty days is to be included in the test. The report must contain a statement with regard to any cow that appears to be suffering from tuberculosis, induration, or other chronic disease of the udder, and as to any bovine animal suffering from tuberculous emaciation, or from chronic cough, and showing definite clinical signs of tuberculosis. Should any animal react to the tuberculin tests it must immediately be removed to another farm or otherwise disposed of. Animals which show no reaction at the first test must be retested after an interval of three months, and should any animal then react it must be removed and the remainder of the herd again tested after another interval of three months. When, after two successive tests of a herd at intervals of three months, no animal reacts, the test must be reapplied at intervals of six months, except when only home-bred animals from a clean herd are introduced, when the interval may be twelve months. Every animal added to the herd must be retested. Certificates, accompanied by temperature sheets, must be sent to the Ministry of Food immediately after completion of each test. Finally, herds must be subject to periodical veterinary examinations at intervals of not less than six months, and a report of each such examination forwarded to the Ministry of Food.

DINNER TO LORD DAWSON.

THE Federation of Medical and Allied Societies met at dinner at the Café Royal on February 25th for the purpose of congratulating one of the original members of its Council, Lord Dawson of Penn, G.C.V.O., K.C.M.G., on his recent elevation to the peerage. Sir MALCOLM MORRIS, Chairman of the Federation, presided, and amongst those present were Dr. Addison, M.P., Lord Astor, Lord Charnwood, and Sir Robert Morant. Between fifty and sixty sat down at the tables.

The CHAIRMAN, in proposing the health of the guest, said that Lord Dawson went to the House of Lords with a very big reputation behind him as a practising physician, who intended to go on practising his profession. The nation to-day was suffering from great prostration as a result of the war. Its mentality was wrong; its system deranged. Lord Dawson was going to take his share in bringing the nation back again to its proper moral and physical condition. The medical profession in the past had not done all that it might have done for the nation, and one of the objects with which the Federation was started was to encourage medical men to take a larger share in the work of the State. Some were found declaring that the only duty of the doctor was by the bedside, but a new conscience was manifesting itself and medical men were responding to the higher claims of citizenship. He urged medical men to give of their best to the local councils of their town and county; work at the periphery was important as well as work at the centre.

LORD DAWSON, in reply, said that there was for any man scarcely a delight in life greater than that of having earned to some degree the confidence and approval of the members of his own profession. It was a special pleasure to him to be the guest of that Federation. He regarded it as remarkable that a body so young should show such vigour, but he attributed that to the fact that it met the needs of the time. He himself would be an egoist indeed if he looked upon the honour which had come to him merely in the light of personal recognition. It was a recognition of the great profession to which he had the honour to belong. It was also an invitation from the State to the medical profession to take that bigger share in national life from which hitherto it had held aloof. And, yet again, it was in line with the tendency towards vocational representation as a factor in national government. Such vocational representation was an inevitable result of the progress of knowledge. The greater the progress of knowledge, the more technical did life become. And as civilization advanced and knowledge played an increasing part, it seemed to him absolutely essential that that knowledge should in some way be at the State's disposal. Matters of government must not be left entirely to amateurs, however brilliant. Each skilled calling in the land should find some collective expression in national councils. The Federation was an effort to bring together the collective voice of the medical and the professions allied to it, and its other function was to educate the profession in public affairs. Dr. Addison as Minister of Health had not only set up a consultative medical council in association with his Ministry, but had given it a generous measure of freedom. That was only a beginning, but it did bring the profession in some organic relationship with administration, and for this the profession owed a debt to Dr. Addison, the full extent of which it did not yet appreciate. In a short time the council would issue an interim report, and the Minister was going to publish it substantially as received by him, so that there again the profession would be given an opportunity of expressing its view on constructive policy. The profession was about to enter on a new era of opportunity.

The CHAIRMAN proposed the health of Dr. Addison. He said that he was not the first of his name to be Minister of the Crown. The other Addison, the essayist, won his position by Court influence and the writing of essays for his party. Their own Dr. Addison had won his position by sheer hard work and parliamentary ability.

Dr. ADDISON, after a reference to the housing question, in which he said that he was certain that the Ministry of Health would win through its present difficulties, went on to speak of the consultative council of which Lord Dawson was the head. It was the first time that any body of medical men in any country had been asked to give its advice to the State on matters such as those which the consultative council was envisaging. But if Lord Dawson thought that what he and his council were going to recommend for the health organization of the nation would meet with universal approbation, he could only tell him, as an old hand, that he was a very sanguine man. The Ministry of Health looked to the Federation, amongst other agencies, to bring a considered opinion to bear upon the proposals which would be published. One of the grave defects in the profession in the past, which it was sought tentatively to remedy, was the absence of any body of men who could be appealed to for judgement on a great public issue. The Ministry of Health was determined on a programme of health service which, although it might take a generation to accomplish in full, would at least commit the State to a course of action from which it could not turn back. If this work could be started on the right lines and with a bold plan, the Ministry would have done well.

Colonel C. J. BOND proposed the toast of "The Federation," and commented upon its achievements. The fact that it had forty allied societies behind it gave it a great driving force. The former conditions of medical work had fostered a crude individualism, and a true perspective of public duty must be obtained. The Federation would make up for this deficiency, and give the profession itself a sense of solidarity and of public duty and citizenship.

Dr. HOWARD MUMMERY, the general secretary, who responded to the toast, said that the Federation stood in no rivalry to any existing body. Nor was it party-political in character. At a recent by-election it supported a Labour candidate, and at another a Coalition Unionist. Out of the ten medical members of Parliament (excluding the two Cabinet ministers) seven were on the council. He regretted that certain organizations whose co-operation was sought had not yet seen their way to render it.

Mr. E. B. TURNER, in felicitous terms, proposed the health of the Chairman, and Sir MALCOLM MORRIS, in responding, said it was a great privilege at three score years and ten—the last lap of life—to be allowed to take some part in such a big cause.

WE announced a fortnight ago that the first meeting of the General Council of the League of Red Cross Societies would begin on March 2nd, and that the thirty Red Cross Societies now comprising the League had been invited to send representatives. The Hon. Sir Arthur Stanley left for Switzerland at the close of last week in order to take part in the conference on behalf of the British Red Cross Society. The Japanese Red Cross is represented by the Marquis Kuniloshi Tokugawa, with Dr. A. Ninagawa as his adviser. We take this opportunity to correct a slip. In announcing the appointment of Mr. Charles R. Hewitt as librarian to the League of Red Cross Societies, he was stated to have been assistant librarian of the Royal Society of Medicine, whereas he was in fact librarian, having held that post since 1907.

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SATURDAY, MARCH 6TH, 1920.

PHYSICAL EDUCATION.

INTEREST in physical education has increased of late, and the medical profession has been rightly urged to take an active part in its development and extension. Physi al education is, indeed, one of the various instruments to be used in the prevention of ill health among children, and it is most important that doctors, and especially those engaged in the school medical service, should bring the light of their knowledge and experience to bear upon the phyical education and training which is now in vogue insthe state schools.

Broadly, there are two periods when facilities for physical training are needed: first, during school life, and secondly, during adolescent and adult life. Obviously a wholly different organization is required during each of these periods. During school life physical education can be imposed upon the child as part of the school routine; the instruction should not only be based upon correct physiological principles, so as to promote the healthy all-round bodily development of the growing child, but it should be given a sufficiently wide interpretation and application to make it interesting to children of different tastes, and thus implant such a genuine love of physical exercise, in one form or another, for its own sake, that the individual will seek opportunities of wholesome outdoor recreation, games, and sports in after-life. Upon the "compulsory" foundation which is laid in the school will depend the permanent success of any "voluntary" organization of adult recreation, and it is therefore important that the opportunities thus provided shall be utilized to the greatest advantage.

Physical training in the schools under the Board of Education was first organized in 1909, though physical "drill" had been carried out in a haphazard way in elementary schools for many years before this. The influence of the training on the health of the children was considered to be so important that the responsibility for the arrangements was in that year placed upon the chief medical officer, Sir George Newman, who was assisted by one of his medical officers and a staff of expert inspectors. For ten years past report has been made to Parliament in the Board's medical reports.

The essentials of a national scheme of physical training as conceived by the Board of Education have included: (*a*) An official *Syllabus* of physical exercises, by means of which reasonable uniformity of instruction might be secured in all schools; (*b*) a minimum of training in physical exercises for all students attending training colleges, special classes, and holiday courses for school teachers desiring further instruction; (*c*) supervision, advice, and constructive criticism from expert gymnastic teachers acting as "organizers" in local areas under the education authorities; and (*d*) reasonable facilities (including sufficient time) and equipment in schoo s for games, play, dancing, and swimming, as well as for the more formal gymnastic exercises. A revised syllabus, issued in 1909, was adopted by practically all schools throughout the country. This *Syllabus* was based in a general way on the Swedish system; the exercises were simple to perform and teach, and were graded for children from 7 to 14 years of age. Model lesson tables and many excellent illustrations were included for the guidance of teachers, and the teaching of games and dance steps was introduced. The volume soon secured an immense circulation.

During the war the teaching of physical training naturally suffered, especially in the boys' schools, but progress was made, nevertheless, and a few weeks ago the Board's Medical Department issued a new, revised, and enlarged *Syllabus of Physical Training*, accompanied by two separate pamphlets dealing respectively with the teaching in infants' schools and with games.[1] The experience gained in the schools during the previous ten years, and the results of recreational training given in the army during the war, have made it clear that the lessons in physical exercises should be made less formal and more recreative, and that greater attention should be given to games and free exercises. In the new lesson tables, therefore, it is suggested that half the time shall be given to easy Swedish movements and the remainder to gymnastic games, dancing, "general activity exercises," and so forth. It is considered important to have a nucleus of formal exercises, in order to obtain the corrective, disciplinary, and mental effects of such training, but it is now recommended that gymnastics should be supplemented by vigorous, enjoyable free movements. In addition to physical training lessons, many schools have provided swimming instruction or organized games in parks or playing fields. The value of evening play centres has been recognized, and their number is rapidly increasing. Boy Scouts and Girl Guides have become associated with the schools in many cases. School Camps have been started and are likely to multiply. This organization has applied mainly to elementary schools, but in 1913 and 1914 the Board of Education issued advisory memoranda on the subject to secondary schools. The establishment of schools which provide whole-time education up to the age of 16, and of day continuation schools, where part-time education will be compulsory until 16, and eventually until 18, will lead to the extension of physical training organization to an age-period when it is most important to supervise the health, to attract the interest and arouse the enthusiasm of the growing adolescent. Further, under the Education Act of 1918 education authorities have wide powers to promote social and physical training by means of holiday and school camps, centres and equipment for physical training, playing fields and school swimming baths, and by providing other facilities for social and physical training in the day or evening. The importance of providing class teachers in elementary schools with expert guidance was recognized, and the Board has encouraged the appointment of well qualified organizers of physical training (men and women) to supervise the teaching in the schools, to demonstrate, advise, encourage, and stimulate. Special grants in aid are given towards the salaries of these organizers. Several well known physical training colleges exist for women—at Dartford, Bedford, Chelsea, and elsewhere; no suitable training school for men teachers of physical training has hitherto existed, but a special course has been instituted at Sheffield Municipal Training College.

It is thus evident that considerable progress has already been made towards a national system of

[1] The publications referred to are the *Syllabus of Physical Training for Schools, 1919*, price 1s. net; *Suggestions in regard to Games*, price 4d. net; and *Physical Exercises for Children under 7 Years of Age, with Typical Lessons*, price 3d. net. The pamphlets are published for the Board of Education by H.M. Stationery Office, and can be obtained through any bookseller.

physical training, and that when Local Education Authorities fully utilize the powers they now possess there will be a continuous system through childhood and adolescence, combining the advantages of formal gymnastics with recreative activities, and including facilities for games, sports, social intercourse, etc., after school hours. Then comes the break. After school days no systematic provision is made. What now seems to be needed is the effective organization of physical exercises and recreation for the great mass of the people. That such provision is practicable has been proved at the front during the war, but there seem to be divided counsels as to ways and means. Some things, however, are evident. Any organization of adult physical recreation must be voluntary and free from Government control. A directorate under the Ministry of Health or Board of Education appears to be both unwise and inexpedient. What seems to be required is a voluntary representative body of experts and others, prepared to work in co-operation with the Local Education Authorities, and willing and able to continue their schemes beyond the age of 18. The duties and powers of Education Authorities should be fully realized by the promoters of all arrangements for providing adult recreation, and advantage should be taken of the existing school organization to induce young people to continue after school life the outdoor games and pursuits for which they have already acquired taste and talent.

THE PHYSIQUE OF BRITISH MANHOOD.

WE print elsewhere this week (p. 331) a full account of the Report upon the physical examination of men of military age by National Service medical boards during the last year of hostilities. This most important document had its origin in the work of a committee set up in March, 1918, by Sir Auckland Geddes when Minister of National Service. Sir James Galloway was the chairman, and Dr. H. W. Kaye the secretary of the committee. Its reference was to consider the best method of utilizing the data obtained from the work of recruiting medical boards, with the intention of making these data readily available for the use of officials of the Ministry, and of placing the information as to the physical fitness of the nation so obtained on record for future use and reference. When the medical department of the Ministry of National Service was transferred to the Ministry of Pensions a year ago, it was decided that this work should be continued by the staff which had been engaged upon it for the previous year, and the responsibility of carrying on the committee's investigations devolved entirely on the secretary, to whose enthusiasm and perseverance a well-earned tribute is paid. The volume now issued represents the first portion of the completed work; the two together will furnish an elaborate physical census of the men of military age, and much more besides. The first volume, amplifying the preliminary communication which we published on September 28th, 1918, throws a flood of light upon the physical condition of the people of Great Britain. The material is analysed in such a way as to reveal the nature and distribution of disabilities among our manhood, and to show how far the national health falls below an attainable standard. This information, compiled with great pains and skill, will, no doubt, form a logical starting-point for future efforts to improve the national health.

It must be said at once that the Report is far from pleasant reading; the message it conveys as to the physical fitness of the British stock will shatter any feeling of complacency. The chief lesson for the future seems to arise from the large proportion of defects clearly due to preventable disease and unhealthy modes of life. As the result of nearly 2,500,000 examinations less than 872,000 men were placed in Grade I—that is to say, only 36 per cent. attained the full normal standard of health and strength and were judged capable of enduring physical exertion suitable to their age; 250,000 were judged to be totally and permanently unfit for any form of military service, and accordingly placed in Grade IV. The method of grading was such that the conclusions drawn from the figures are more likely to err on the side of overrating than underrating the physical fitness of our manhood. It is especially disquieting to find that the physique of the youths called up as they reached the age of 18 was far below the standard of health we had a right to expect. There were twice as many lads totally and permanently unfit for any form of military service as there should have been. If such be the state of physique amongst our youths, what are we to assume as to the condition of older men who have had to undergo the full stress of industrial life? Such facts as are recorded in the Report bring out with startling clearness the magnitude of the need for social, economic, and medical work before the country can take to itself credit for having attained even a normal standard of national physique.

The Report contains a vast amount of hitherto unknown or unclassified information relating to the general physical condition of the male population of the United Kingdom. It forms, as we have already implied, a foundation upon which it should be possible to base sound projects for the amelioration of preventable disease and for the extension of an effective health organization. As a work of reference, as a handbook essential to social and health work, and as a landmark in the history of medical investigation, the Report occupies a unique position. It demands careful study, and should be at hand for frequent reference. We await with interest the publication of the second volume, which, it is understood, will give in yet further detail the statistical and other facts embodied in the Report now before the medical profession and the public.

THE OPIUM QUESTION AND THE PEACE TREATY.

THERE is every prospect that during this year substantial progress will at last be achieved towards putting into operation the International Opium Convention which was signed at the Hague in 1912. In an article which appeared in the JOURNAL on September 20th, 1919, on "The international control of drugs of addiction," Sir William Collins indicated the advance which had been made towards bringing that Convention into effect under Article 295 of the Treaty of Peace and Article 23 (*c*) of the Covenant of the League of Nations. By the former all signatories of the Peace of Versailles who had not ratified the Opium Convention were held to be bound by a Special Protocol, opened at the Hague after the third Opium Conference, and to be under obligation to enact the legislation required by the Convention within twelve months. By the latter the general supervision over the execution of the Opium Convention was entrusted to the League of Nations.

In a letter which appeared in *The Times* on January 3rd last Mrs. Hamilton Wright showed that the United States, which is one of the five Powers party

to the Special Protocol binding its signatories to enforce the Convention without waiting for other Powers, had enacted its own legislation for that purpose as well as for its consular districts in China. The so-called Harrison Bill, it appears, was largely the work of the late Dr. Hamilton Wright, who represented the United States at the Shanghai Commission as well as at the first and second Hague Conferences.

Whatever fate may attend the League of Nations at the hands of the American Senate, there is, as *The Times* recently pointed out in a leading article, "no necessity to wait until the League is fully at work. In fact, if legislation is to be passed within the prescribed period, the Governments concerned must begin at once." We gather from a letter from Sir William Collins in the same newspaper of January 6th that our own Government takes the view that Article 295 implies that Powers like Great Britain, Belgium, Italy, and some eleven others which had ratified the Opium Convention, are also bound by the Special Protocol. Thus it would appear that France, Japan, Greece, Serbia, Rumania, Bolivia, Haiti, Panama, Peru, and Germany, are now under obligation to enact pharmacy laws, within twelve months from January 10th last, to give effect to the restrictions on traffic in noxious drugs laid down by the Opium Convention. And further, that these Powers are now to be supported by Great Britain, Belgium, Brazil, Denmark, Ecuador, Guatemala, Italy, Nicaragua, Portugal, Siam, Spain, Sweden, Uruguay, and Venezuela in proceeding to enforce the Convention without waiting for the few remaining Powers which are neither parties to the Treaty nor to the Protocol.

It is clearly high time for Great Britain to get ready her pharmacy legislation as required by the Opium Convention. The Home Secretary has stated that he is sanguine that the necessary Bill will be introduced early this session. It would ill become this country, whose delegates at the Hague were instructed to press—and did press successfully—for the inclusion of strict regulations of the traffic in morphine and cocaine as well as in opium, to be backward in giving effect to the requirements of the Convention. Should any Power be slack in carrying out its obligations it would apparently rest with the Government of the Netherlands, under Article 24 of the Convention, or the Council of the League of Nations, under Article 23 (*c*) of the Peace Treaty, to put the necessary machinery in operation.

When we remember that the Convention requires the Powers which are parties to it so to supervise the manufacture, import, sale, or export of these potent drugs as to restrict their use to medical and legitimate purposes only, and when we recall the wholesale abuse of these drugs, as disclosed in the daily papers, we cannot fail to be impressed with the urgent need for action.

Only last week it was officially stated on behalf of the Board of Trade in the House of Commons that more than 300,000 ounces of British-made morphine were exported from these shores last year. It requires a large draft upon our credulity to believe that any considerable portion of this can have been utilized for medical and legitimate purposes only. In years prior to the war British morphine, it is believed, found its way, by the ton, into China, while the import of Indian opium was being religiously precluded. Recent reports from China show that the poppy is being again extensively cultivated in parts of that country, while the area under poppy cultivation in India appears also to be extending. Indeed, the need for the restrictions laid down in the Convention in 1912, which were amply justified then, is even more imperative to-day, and we look to the Government to lose no time in handling this question effectively.

THE ANNUAL MEETING AT CAMBRIDGE.

We are now able to give some further details with regard to the programme that is being drawn up by the local committee for the Annual Meeting of the British Medical Association to be held in Cambridge next summer. The Annual Representative Meeting will, as already announced, begin on Friday, June 25th, at 10 a.m., and the members of the Representative Body will dine together that evening. The session will be continued on Saturday morning at 9.30, and, if necessary, on the Monday and Tuesday. The Examination Halls will be available for the Representative Meeting, and also for the statutory Annual General Meeting, which will take place at 2 p.m. on Tuesday, June 29th. On that evening Sir Clifford Allbutt, after his presidential address to the Association in the Senate House, will receive distinguished foreign guests, and a reception will be given by the local Branch in King's College. The sectional scientific meetings will be held in the New Museums on Wednesday, June 30th, Thursday, July 1st, and Friday, July 2nd; the mornings from 10 till 1 being devoted to discussions, and the afternoons from 2.30 to laboratory and clinical demonstrations, which will form a special feature of the meeting. On Wednesday, at 5 p.m., religious services will be held in the University Church—Great St. Mary's—and in the Roman Catholic Church. On the same evening the Vice-Chancellor of the University will give a soirée at Emmanuel College, and the honorary secretaries of Branches and Divisions will hold their conference and dine together. On Thursday evening, at 7.30 o'clock, the annual dinner of the Association will be held in the hall of St. John's College, the numbers being limited to 200. On Friday evening there will be the popular lecture, by Dr. G. S. Graham-Smith, F.R.S., a soirée given by the Master and Fellows of Trinity College, and an entertainment for Freemasons. According to present arrangements the Guildhall, which has been placed at the disposal of the Association by the Mayor and Corporation, will be used as the reception room for members and guests; it is situated in the Market Square at the centre of the town. The Corn Exchange, near at hand, has been secured for the Annual Exhibition, and the Art Schools will be used for offices. Local entertainments—garden parties and the like—will be given on several afternoons, and a visit is being arranged to the tuberculosis colony at Papworth. Saturday, July 3rd, the last day of the meeting, has been set apart for excursions to places of interest in the neighbourhood. The various college authorities have generously offered bedrooms for a thousand visitors, and to provide them with meals at an inclusive daily charge; this will ensure accommodation for all members unaccompanied by ladies. There are also a large number of university lodgings in the town, and the local committee will engage as many of these as are needed by visitors for whom private hospitality cannot be provided. An announcement will be made in due course in this JOURNAL when arrangements are sufficiently advanced for the acceptance by the local authorities of names of those proposing to attend the meeting.

TEACHING OF OPHTHALMOLOGY.

Considerable interest is being shown at the present time in this country in schemes for what is called "post-graduate" medical teaching. It is not a new subject in this country, but it has recently received an impetus, owing partly to the wish shown by many civil practitioners to have an opportunity of refreshing their knowledge,

partly to the demand arising among medical men who served during the war, and partly no doubt to the observations on the subject in Sir George Newman's Memorandum on Medical Education in England, and the developments expected to arise out of the policy the Ministry of Health is shortly to make public. The subject has many aspects: one of them is discussed in the *Archives of Ophthalmology*, which contains three papers on the subject—by Verhoeff of Boston, Wiener of St. Louis, and Duane of New York. The former concerns himself with the whole teaching of his subject in the case of undergraduates and graduates; the two latter deal with graduates only. Verhoeff divides those who desired to be taught into four groups: (1) medical undergraduates, (2) general practitioners who wish to take up this special subject, (3) practising ophthalmologists anxious to repair deficiencies in their training, (4) recent medical graduates who propose to qualify themselves for the practice of ophthalmology. For the first group he recommends a short comprehensive general course; the men in the second group, he says, are usually persons who have not succeeded in other branches of the profession, and think that a six weeks' course in eyes will render them fit to practise ophthalmology, for these he advises a complete graduate course; for the third group special courses of short duration, say, in the summer months; for the fourth group, the most important of all in his view, a thorough training spread over four years, in two parts. In the first part, lasting two years, there should be degree work in higher algebra, trigonometry, physics, chemis ry, plane and solid geometry; practical clinical experience in general medicine and surgery; and such an acquaintance with special subjects, neurology and dermatology, as can be gained in the out-patient clinics of a large general hospital in a period of six months. Verhoeff insists that in this preliminary part of the course there must be elasticity of detail, as he considers it undesirable to try to cast all students in the same mould. This preliminary course should be the first step towards the degree of Doctor of Ophthalmology, and the succeeding two years should be spent, for the first year, from 9 a.m. to noon, three days a week, in practical clinical work in the out-patients' room, and three days a week in the study of in-patients and operations; the afternoons should be given to laboratory work, anatomy, physiological optics, set operations on animals' eyes, and so on. During the second year the student would act as house-surgeon to an eye hospital, and might be allowed to take part in elementary teaching, for it is in the teaching that the chief difficulty lies at present. Wiener's paper is a plea for more thorough graduate teaching in the U.S.A.; so is that of Duane, who outlines a plan on which a post-graduate course could be worked; he advocates "quizzing" in all stages of training. Verhoeff's scheme appears ideal, but difficult to work at present; it is obviously impossible for one man, or even a body of men, to see all the patients and at the same time do all the teaching. A good deal depends upon the type of student to be taught. Some assimilate the theory by "spoon feeding"; others prefer the more laborious method of getting their experience from a long service of drudgery, doing the actual work in out-patient rooms; generally speaking, this has been the method of most of us. It may be taken as a fact that the man recently qualified, who starts at an eye hospital, saying that he is specially interested in, say, fundus cases, will not go very far unless he is also willing to undertake the preliminary part of the examination of an eye case, by which the fundus examination must be preceded. Most ophthalmic surgeons have taken to their special subject fortuitously, as it were; we all have to live, and unless adequate remuneration is forthcoming for the teacher, a man cannot be expected to give up much of his time to this form of work, unless, of course, he happens to possess private means.

THE SCIENTIFIC STUDY OF RADIOLOGY.

We welcome the announcement that a chair of medical radiology has been established in the Middlesex Hospital Medical School to work in conjunction with the Joel chair of physics there, because we believe that radiotherapy must be got out of the empirical rut into which it seems to have slipped in this country. With regard to the treatment of new growths alone, it seems clear that progress can only be achieved if a definite plan of research is carefully thought out by the therapist and physicist in consultation and carried through by them conjointly. The efficacy of radium in the treatment of rodent ulcer is well established, but with regard to both sarcoma and carcinoma we are still in the empirical stage. Why is it that some cases of sarcoma are either cured or kept at bay for many years, while in others the treatment totally fails? Again, why is it that in some few cases radium seems to arrest and, in exceptional instances, to cure carcinoma, whereas in the majority it fails entirely? There must be some difference in the mode of application of the radium or in the growth itself, or in the general condition of the patient. The importance of the matter is illustrated by the statement Dr. Herbert Spencer makes in his third Lettsomian Lecture (p. 324), to the effect that owing to the great advance made in the treatment of cancer of the cervix of the uterus by radium, mesothorium, and x rays, operation for this condition has been entirely abandoned in favour of treatment by radiation in several of the chief clinics of Europe. The chair of radiology at the Middlesex Hospital Medical School was formally instituted by the Senate of the University of London on February 25th. The authorities of that hospital have, we learn, felt for some time that if real progress is to be made in radiology in this country an expert in this branch of medicine and therapeutics should be able to devote his whole time to the department and to the work of education and research. The hospital affords great opportunities for the investigation of the possibilities of radiotherapy. Over one hundred beds are constantly occupied by cases of cancer. The hospital possesses a large supply of radium, and in the physics department there are special laboratories for the investigation of the physiological and pathological problems that arise. We recorded a short time ago the endowment of a university chair of physics in the Middlesex Hospital Medical School by Mr. J. B. and Mr. S. B. Joel. The new department and the professor of radiology will work in close association with the Joel professor (Dr. Sidney Russ) and the department of physics, and it is hoped that some other millionaire will seize the opportunity to associate his name with the medical chair.

MACKENZIE DAVIDSON MEMORIAL FUND.

A COMMITTEE has been formed to establish a memorial to the late Sir James Mackenzie Davidson. His death while still in the full vigour of life deprived radiology of one of its pioneers whose single-hearted devotion to its advancement never abated. His name is especially associated with the development of radiographic methods, particularly stereoscopic radiography, and with the perfecting of the use of x rays for the localization of foreign bodies. He was rightly regarded as the head of his department in this country, but his reputation was international. Throughout his career he was unsparing in his efforts to raise the status of radiology among the sciences and was insistent on the fundamental value of physics in the study and application of radiology to medicine, particularly in regard to methods of measurement and the designing of equipment. Of his ingenuity in designing, of his enthusiasm for every scheme to advance the subject, and of his readiness to impart his knowledge to others, all who came into contact with Mackenzie Davidson are well aware. We have no doubt that the appeal, made by many occupied in his own branch of the profession, by

physicists, and by a number of his personal friends, to found another University Chair of Radiology will meet with a ready response. Had he lived Mackenzie Davidson would himself have been among the first actively and generously to support the foundation of an institute for research and teaching in radiology, and it is hoped, if funds permit, to establish such an institute to which the chair might be attached. It would not be confined to purely medical questions, for research has shown that the *x* rays may be of value to a number of industries. It has already been employed in detecting faults in wood and slovenly workmanship in the building of aeroplanes and other appliances. Only recently it has been found to offer great possibilities for the examination of the internal structure of metals, and has been turned to account by the steel manufacturer, the metallurgist, and the engineer. A chair of radiology at an *x* ray institute may be expected to play a great part in the development of these new branches of radiology. The appeal is signed by, among others, Mr. Bonar Law, Sir J. J. Thomson (President of the Royal Society), Sir Clifford Allbutt (President of the British Medical Association), Sir Alexander Ogston (who was associated with Mackenzie Davidson during his life in Aberdeen), Sir Robert Hadfield, Dr. Christopher Addison, Lord Harcourt, Lord Dawson, Sir W. Watson Cheyne, Sir F. W. Mott, Sir Anderson Critchett, Professor Sir Ernest Rutherford, and many others associated with the study and application of the principles of radiology. Subscriptions will be received by Dr. Robert Knox, 38, Harley Street, W.1. Cheques should be made payable to the London Joint City and Midland Bank, crossed and marked "The Mackenzie Davidson Memorial Fund." There is plenty of room both for this proposed radiological institute and for the radio-therapeutic scheme now to be carried out at the Middlesex Hospital. There will be ample work for both.

MEDICAL ENDOWMENTS IN AMERICA.

MR. BALFOUR, in his reply to the deputation from the British Medical Association and the British Science Guild, which laid before him reasons for the provision by the State of suitable rewards for scientific discoverers, referred to the liberality with which American millionaires had given money to universities, especially to meet the ever-advancing needs of medical education and research. We cannot profess to give anything like a complete list even of recent benefactions, but we may quote a few instances which happen to be at hand. The medical school of Harvard University has received an anonymous gift of £10,000 for the establishment of the James C. Melvin fund for tropical medicine. The income is to be used in research. The school has also received the income of the residuary estate of Horace Fletcher, to be used to "foster knowledge of healthful nutrition." The university proposes to adopt this year a programme of compulsory athletics or physical training, in view of the fact that 40 per cent. of the young men of the United States were turned down after examination by medical boards as unfit for military service. The basis of the programme is expressed in the formula "Get everybody into the game." The Washington University Medical School, in addition to several small sums for special researches, has received £60,000 for the endowment of the department of pharmacology. The trustees of the University of Tennessee have decided to erect a building for the department of medicine at Memphis, at a cost of £20,000. The medical department of the University of Louisville has received from one of the members of the faculty a gift of £1,000, payable in instalments of £100 annually. The first will be expended in the equipment of a research laboratory in which medical and surgical diagnostic problems are to be worked out. The University of Cincinnati has established in its medical school a department of industrial medicine and public health. The training is intended to make students competent social and medical engineers and to enable them to educate the public in the importance of sound health. Yale University Medical School has enlarged its library. It now contains 26,000 volumes, including 14,000 bound volumes of medical journals and translations. It has over 250 medical periodicals, including European as well as American journals. Though not strictly germane it may be noted that the Michigan State Legislature recently appropriated £200,000 towards the erection of a new hospital with 800 beds, to be connected with the Medical School of the University of Michigan. It is estimated that the building and equipment will cost between £400,000 and £600,000.

CHARLES MERCIER.

FOR the memoir of Dr. Mercier, printed in the JOURNAL of September 13th, 1919, we were fortunate in securing the ready help of Sir Bryan Donkin, who wrote an appreciation of his friend as psychologist, physician, and logician. We were able to publish also a brief but illuminating note sent to us by Sir William Osler, who was then on a holiday in Jersey; this was, we believe, his last published writing; within a few weeks he, too, passed into the valley of the shadow. So unlike in so many respects, Osler and Mercier had yet much in common that shone out in the genial after-dinner talk at Oxford: each personified in his own way the union of medicine and letters. We are pleased to find in the current number of the *Journal of Mental Science* a longer notice in memory of Dr. Mercier, written by Sir Bryan Donkin from his full knowledge of the man and his work. He notes the likeness in intellectual power and gifts between Charles Mercier and Henry Maudsley. Both, he says, possessed in a large measure the scientific mind, and their works were marked alike by dominant determination to search out as thoroughly, and explain as clearly and fully as their powers allowed, the subject they had chosen for the chief labour of their lives. Both men were trenchant and alert in controversy, and both excelled in their wide and intimate knowledge of the best of English literature. Both, too, had a mass of readily quotable knowledge of the Bible, Shakespeare, and many other classics, to an extent not often attained even by purely literary specialists. From this apt comparison Sir Bryan Donkin passes to sketch in bold outline Mercier's life of strenuous effort, and his special qualities as an alienist, a scientific philosopher, and a man of letters. He enlarges on one matter in order to clear up a misunderstanding for which Mercier himself was partly to blame. It has been sometimes implied that Mercier looked upon disease of the mind as the result of disordered conduct; but even in his early writings he maintained that disorder of mind could and did exist without insanity; the gist of his teaching was that a man is rightly judged as insane from evidence of what he says and does, not from what one may infer or guess that he thinks or feels. This sympathetic and discerning obituary notice is rounded off with a note on Mercier's literary style by the secretary of the Casual Club; with Osler's tribute quoted from our columns; and with a fitting extract from one of Henley's *Echoes*, which must often have passed through the minds of those aware of Mercier's indomitable courage "under the bludgeoning of chance."

INFLUENZA.

Too late for notice in our last week's issue, the Ministry of Health issued a statement as to the present position of influenza in this country. The weekly returns of deaths from influenza (which we believe include all deaths in the certification of which the diagnosis of influenza as a primary or associated cause occurs) have increased since the beginning of the year, but the actual numbers are small, indeed smaller than during the period following the

epidemics of 1890–92, so that the Ministry does not think they need give rise to apprehension. On the other hand, there has been a fairly large increase of the notifications of pneumonia; these, however, cannot be checked by comparison with previous years, owing to the recent introduction of compulsory notification. The Ministry has information of epidemics of influenza in certain large schools situated in the south and south-west of England, and, although there are no immediate indications of a general recrudescence, it again directs attention to the general warning previously issued, and re-emphasizes the importance of attention to the measures therein advised. The Ministry goes on to report that public health authorities and the medical profession have already widely availed themselves of its assistance or advice in concerting appropriate measures to deal with a possible emergency. At the time of writing we have no information which would lead us to modify the official diagnosis of the position. It is true, we believe, that the increase of notifications of pneumonia has been arrested, but the deaths from both influenza and all forms of pneumonia are still increasing. It is, of course, normal for the mortality from respiratory diseases to increase through the first quarter of the year, but whether the actual rate of increase is within the limits of probable chance fluctuation is a question only to be answered after a minute inquiry, which is no doubt being carried out by the official committee. In most of the American cities which have experienced severe epidemics the disease is now subsiding. In New York, where 24,385 cases were notified in the week ending January 31st, and 21,674 in the following week, only 8,637 were returned for the week ending February 14th. Chicago reached its maximum as early as the week ending January 24th, Detroit in the following week. The American epidemics seem to have been widespread but less fatal than in the last wave. In New York the largest number of deaths was 956, in the week ending February 7th. Of course, these figures (as indeed those of notifications) are mere indices and have no pretension to be exact. Information as to the European position is vague, but at Copenhagen the notifications declined from 11,038 in the week ending February 7th to 8,368 in the following week. In the official statement it is said that competent American medical authorities consider the disease to be the same as that which was prevalent eighteen months ago, but of a less severe type. From the epidemiological point of view a most interesting feature is the fact that, despite the wide dissemination of the disease in epidemic form in America and the intercourse between the two countries, the only manifestations here so far have been in communities little exposed to foreign importation. This is not, indeed, a novel point, but it is none the less remarkable.

THE PORTAL FOR ACUTE POLIOMYELITIS.

THE low morbidity of acute poliomyelitis, even during severe epidemics, has been ascribed to a relative insusceptibility which is no real explanation, or to a specific protection, due to an unperceived active immunization by the virus, of the community. No systematic study of the blood of exposed persons who have remained free from poliomyelitis has been published; some observations on the blood of doctors, nurses, and others repeatedly exposed during the epidemic of 1916 were made by Flexner, but they did not yield definite evidence of the presence of specific antibodies. In 1917 Amoss and Taylor showed that in man the nasal mucous membrane exerts a local protective action and neutralizes or destroys the virus of acute poliomyelitis. In order to throw light on this defensive power Flexner and Amoss[1] have carried out a number of experiments on monkeys. Although the intranasal introduction of cotton-wool containing the active poliomyelitis virus may infect the monkey, all the monkeys thus treated are not affected, and the successes are less than by the intra-cerebral route, and it appears that an efficiently acting nasal mucosa both prevents the passage of an energetically applied virus to the brain and spinal cord and also leads to the disappearance of the virus from the nasal mucosa in a relatively short time, whereas an inefficient mucosa allows the virus to persist for an undetermined period. The incidence of healthy and chronic carriers of the poliomyelitis virus is probably determined by the protective power of the nasal mucous membrane. It is important to recognize that the application to the mucosa of chemical antiseptics does not exert any beneficial influence and may, indeed, do harm by unfavourably modifying the protective powers of the mucous surface. Some further experiments showed that infection with the virus of poliomyelitis, applied to the nasal mucosa under conditions favourable to extension to the central nervous system and to multiplication there, can be prevented by the intravenous injection of poliomyelitis immune serum, the meeting place of the virus and the serum being probably in the subarachnoid space.

[1] S. Flexner and H. L. Amoss, *Journ. Exper. Med.*, Baltimore, 1920, xxxi, 123–134.

NATURE AND TREATMENT OF HYPERPYREXIAL HEATSTROKE.

To the first number of the *British Journal of Experimental Pathology* Dr. W. Cramer contributes the results of an investigation on the mode of action of a chemical substance, beta-tetrahydronaphthylamine, which produces fever. He found that it caused prolonged sympathetic stimulation associated with over-activity of the thyroid-adrenal apparatus, and that the increased production of heat and diminished loss resulting from this induces pyrexia, which from its origin he called "sympathetic fever." If experimental animals are kept in a cool atmosphere the increased loss of heat diminishes the height of the fever and may even prevent the body temperature from rising. Exposure to a warm atmosphere or crowding the animals together, by interfering with the rate of cooling, elicits a rapidly fatal hyperpyrexia. The circumstances under which it is produced and the conditions found *post mortem* present a striking resemblance to hyperpyrexial heatstroke in man. The explanation of hyperpyrexial heatstroke in man suggests that an extrinsic factor (deficient cooling due to conditions of environment) acts upon an organism which is under the influence of prolonged sympathetic stimulation due to the excessive activity of the thyroid-adrenal apparatus. In the treatment of the condition in man the first essential is to reduce the temperature by drastic cooling, which should be instituted during the prodromal stage described by Hearne in our columns (vol. i, 1919, p. 516). The principal symptom in this stage is suppression of sweating, which may be present from one to forty-eight hours before the attack. In discussing accessory methods of treatment Cramer condemns the injection of saline or other fluids, and observes that it is not clear how venesection can combat the condition, though it may relieve the symptoms. Morphine was found useless to arrest experimental heatstroke. A chart of the effect on a rat shows an initial fall of temperature, followed within two hours by a rapid rise, which, however, was not accompanied by excitement; the temperature eventually rose higher than in another animal which had not received morphine, and both died at about the same time within four hours of the beginning of the experiment. Chloral was found a much more suitable drug in experimental heatstroke. In mice and rats it was found possible to delay the onset or prevent heatstroke altogether by a dose of chloral, which produces slight anaesthesia if given alone. It was necessary, however, to repeat the dose, for as soon as the narcotic effect passed off the temperature began to rise. The effect of chloral is

thought not to be specific, but to be due to the condition of anaesthesia it produces, for there is evidence that in anaesthesia the effect of a given dose of adrenin is less than in a normal animal. Whether this observation can be applied to man is not known.

PROPOSED ALL INDIA RESEARCH INSTITUTE.

PROFESSOR E. H. STARLING, F.R.S., has sailed for India to advise as to the locality and equipment of an All India Research Institute. The Government of India already maintains several research institutes, but the Director-General stated a year ago that it was a matter of urgency to establish an additional research institute in a central position, where opportunities for clinical investigations would be available. Delhi, the new capital of India, was suggested as a site for a new institute to serve as the head quarters of the research organization, but other places have been mentioned. It may be added that the Indian Medical Research Fund Association, which has an income of five lakhs (approximately £33,000) a year, will continue to organize research in India by engaging, financing, and equipping men for special research work. The bacteriological department, a central organization under the Government of India in the Department of Education, has a staff of thirty officers employed to staff the research institute at Kasauli, the Pasteur Institute of India, the provincial laboratories, the provincial Pasteur institutes, and for pure research work. The Imperial Research Institute, which it is now proposed to establish, will be directly under the Central Government, but it is hoped that provincial governments will develop existing facilities for research by establishing additional research institutes of their own. Professor Starling, we understand, expects to be absent from this country for about three months. It was understood some time ago that Sir D. J. Tata, senior partner of Tata, Sons, and Co., of Bombay, contemplated the foundation and endowment of a large independent research institute in medicine as a complement to the chemical and physical research institute at Bangalore. Nothing has been heard recently of this proposal.

THE NOTIFICATION FEE AND THE END OF THE WAR.

WE announced at the time that the Ministry of Health, in a circular dated December 20th last, stated that the medical practitioner's fee for notification of a case of infectious disease would revert to 2s. 6d. on the date of the termination of the war as fixed by Order in Council. There is as yet no indication when that Order in Council is likely to be issued. As long ago as last July the War Office assumed that the official date of the termination of "the present emergency" would be August 4th, 1919. It may be a convenience to the bureaucracy, but we cannot see that it is in the public interest to delay fixing the official date of the end of the war until the formalities of peace have been ratified with countries which ceased to be in arms against us sixteen months ago. It is to be hoped that this matter will soon be raised in Parliament. It is possible that the real motive, whatever it be, for postponing the issue of the Order in Council will, even so, not be brought to light; but if the House of Commons presses for an explanation the bureaucrats may find it convenient to stop further inquiry by getting the Order issued before the last solemnity is concluded with Turkey or Bulgaria, or whichever of the beaten nations happens in theory to be still at war with us. Unless awkward questions are put in public, the continuance of frontier skirmishes with some hill tribe in North-West India will, perhaps, seem to the official mind a good enough pretext for holding civilian doctors in the army abroad, and for paying a shilling for notification of infectious diseases at home.

THE REGIUS CHAIR OF MEDICINE AT OXFORD.

THE King, on the recommendation of the Prime Minister, has approved the appointment of Sir Archibald E. Garrod, K.C.M.G., M.D., F.R.S., to be Regius Professor of Medicine in the University of Oxford, in the room of the late Sir William Osler. We congratulate Oxford on securing for its chair of medicine so distinguished a scientific physician, and a teacher held in such affection by his pupils. Sir Archibald Garrod is physician to St. Bartholomew's Hospital, and consulting physician to the Hospital for Sick Children, Great Ormond Street. He served during the war as consulting physician to the Mediterranean Forces with the rank of Temporary Colonel, A.M.S., and after his return was appointed Director of the newly formed medical "element" in the clinical teaching unit at St. Bartholomew's. He was Bradshaw lecturer in 1900 and Croonian lecturer in 1908 at the Royal College of Physicians of London, and was elected a Fellow of the Royal Society ten years ago, largely in recognition of his work in chemical pathology. In 1914 he gave the address in medicine at the Annual Meeting of the British Medical Association at Aberdeen, and received the LL.D. of that University *honoris causâ*. His war services were rewarded with the C.M.G., and later the knighthood of the same Order; and the University of Malta conferred on him the honorary M.D. degree. All who have been associated with him at home and in the army will welcome Sir Archibald Garrod's appointment to be the head of the medical school in his own great University, and will wish him success and happiness in a post so well suited to his character and attainments.

WE understand that Captain W. E. Elliot, M.C., has succeeded Dr. A. C. Farquharson as Secretary of the Committee of Medical Members of the House of Commons. We understand also that Lord Dawson of Penn has consented to co-operate with the committee.

THE lectures and practical instruction for a diploma in psychological medicine at the Maudsley Hospital, Denmark Hill, S.E.5, having now been arranged, Sir Frederick Mott will be glad to meet medical officers of asylums and practitioners desirous of attending the course on Wednesday, March 10th, at 2 p.m., at the hospital, in order to arrange the days and hours to suit the convenience of the greatest number.

AMONG those recommended by the Council of the Royal Society for election as Fellows are Dr. E. P. Cathcart, professor of chemical physiology in the University of Glasgow, and Dr. J. J. W. Stephens, professor of tropical medicine in the University of Liverpool. The other new Fellows include Dr. F. H. A. Marshall, lecturer in agricultural physiology, Cambridge, Mr. A. W. Hill, assistant director, Kew Gardens, and Dr. Robert Robinson, professor of organic chemistry in the University of Liverpool.

THE appointment of the Right Hon. Sir Auckland Geddes, K.C.B., M.D., as His Majesty's ambassador extraordinary and plenipotentiary in Washington, is announced this week. The broad details of his career, both as teacher of anatomy before the war, and as administrator and statesman during the past five years, are well enough known to our readers. No member of the medical profession, so far as we are aware, has hitherto served as British Ambassador to a foreign country. In consequence of this appointment Sir Auckland Geddes has resigned the post of Principal of McGill University, accepted by him last year with the intention of returning to Montreal on his release from Cabinet office in London.

Medical Notes in Parliament.

National Insurance Amending Bill.—Dr. Addison, on March 1st, formally introduced the National Health Insurance Bill "to amend the Acts relating to National Health Insurance." It was backed by Mr. Munro (Secretary for Scotland) and by Mr. Macpherson (Chief Secretary for Ireland), and ordered to be printed. The main provisions were stated in the SUPPLEMENT of January 24th, page 20.

Insurance Administration.—In reply to Mr. Charles Edwards, Dr. Addison said, on February 24th, that in response to representations received from a large number of approved societies he hoped at a very early date to introduce a bill to revise the present scales of insurance benefits and contributions, and this would make it possible to increase the amount for administration.

Infectious Diseases at British Ports.—In reply to a question by Lieut.-Colonel Raw, Dr. Addison, on February 26th, said detailed consideration was being given to the danger of the introduction of infectious diseases through the ports of this country in view of the widespread prevalence of small-pox, typhus, and other epidemic diseases abroad. Special arrangements have been made with the Foreign Office and the Colonial Office whereby periodical and continuous information was received and appropriate action taken. A weekly bulletin was forwarded from the Ministry to the medical officers of health of the Port Sanitary Authorities in this country, and special bulletins when occasion required. The powers at present possessed by Port Sanitary Authorities were inadequate. Regulations would shortly be issued with the object of obtaining a greater security against the introduction of infectious diseases in this country from abroad and of increasing the efficiency of Port Sanitary Administration, and arrangements had been made with the Treasury for the provision of special financial assistance.

The Welsh Board of Health.—Dr. Addison, on February 26th, informed Mr. A. T. Davies that the Welsh Board of Health did not include a woman representative. An increase in its membership was being considered, and the point referred to would be borne in mind.

The Training of the Blind.—Dr. Addison, in reply to Mr. R. Young, on February 25th, said it was not possible to give figures as to the expenditure of the Poor Law authorities on the training of the blind, as no separate record was kept by the authorities. On March 1st Mr. Lloyd George said that the Minister of Health was giving special consideration to the matter of the training of the blind, in consultation with the Advisory Committee on the Blind, and it was hoped that some satisfactory steps might be taken in the near future to deal practically with the matter.

Morphine, Morphine Salts, and Opium.—In a written reply to Mr. Gilbert, on February 24th, Mr. Bridgman stated that the quantity of morphine and morphine salts registered as exported from the United Kingdom in the year 1919 was 322,970 oz., of which 121,474 oz. went to the United States. The records show that no morphine and morphine salts were exported to Japan. No particulars were available with regard to consignments by post. The quantities of opium registered as imported in the United Kingdom during 1919 from British India, Persia, and Turkey respectively were as follows: British India, 466,475 lb.; Persia, 30,558 lb.; Turkey (European), 204,956 lb.; Turkey (Asiatic), 133,157 lb.

Naval Medical Service Promotions.—Sir Watson Cheyne asked the First Lord of the Admiralty, on February 25th, if he was aware that the proportion of surgeon captains to surgeon commanders was 1 to 19, of paymaster captains to paymaster commanders was 1 to 11, of engineer captains to engineer commanders 1 to 9½, and of executive captains to executive commanders 5 to 9; and whether he realized that this point was a serious matter for the Naval Medical Service and might markedly increase the difficulty of recruiting for that service; and whether any steps were being taken to remedy this disparity between the various branches of the service and at least to place the surgeon captains on the same basis as the paymaster and engineer captains. Dr. Macnamara gave a written reply as follows: "The proportions are approximately as stated, though the proportion of surgeon captains to surgeon commanders is more correctly 1 to 17.4. At the present time, however, there is a considerable surplus in the number of surgeon commanders and a shortage in the junior ranks, so that normally the proportion of surgeon commanders would be very much less. The question of the number of higher ranks in the Naval Medical Service has been under consideration, and it has been decided to increase the number of surgeon rear admirals to 6, and the number of surgeon captains to 16, excluding one officer specially promoted to that rank for service during the war. The numbers will be further considered as necessity arises, dependent in all cases on the requirements of the Naval Service. It may be pointed out that the conditions of service of medical officers in the Royal Navy have been very appreciably improved as a result of the recommendations of the Jerram-Halsey Committee, as not only have the rates of pay been increased but the period of service for promotion from surgeon lieutenant to surgeon lieutenant commander has been reduced from eight years to six years and similarly that for promotion from surgeon lieutenant commander to surgeon commander, a reduction of four years in all. The earlier advancement to surgeon commander thus authorized has increased the apparent disparity of numbers of the higher ranks."

Naval Officers' Income Tax.—Mr. Long, replying to several questions on February 25th, said it was considered by the Government that there was no justification for treating naval officers in the matter of income tax differently from the rest of the community, and it was therefore decided that tax at the ordinary civilian rate should be charged as from the beginning of the ensuing financial year. The rates of pay approved were substantially those recommended by the Halsey Committee, and were deemed adequate, notwithstanding the Committee's report that any increase in the rate of income tax would necessitate increased scales of pay. Mr. Long demurred to Viscount Curzon's suggestion that owing to the present position of naval officers with regard to income and the withdrawal of children's allowances the increase of pay would all be absorbed.

Officers' Pensions on Continued Service.—Mr. Long, on a question by Rear Admiral Adair, on February 25th, said that a naval officer due to retire during the war, but who was kept on, could count such kept-on time for increase of pension, in accordance with pre-war regulations, if it were to his advantage. Alternatively, he might under the concession recently granted to these officers, as the result of a recommendation of the Officers Pay Committee, receive a bonus of 25 per cent. on his full pay in lieu of counting such kept-on time for increase of pension. Officers retired before the war, on the other hand, were entitled only to receive the bonus of 25 per cent. on their full pay in lieu of counting their service for increase of retired pay. The 25 per cent. bonus was calculated on the full pay of an officer's rank on the retired list and not upon his pension. It was granted in lieu of counting service for increase of retired pay, and was not in the nature of compensation for disturbance.

Disability Partly Due to Military Service.—Sir L. Worthington-Evans, on February 26th, in reply to Captain Loseby, said that in the case of a man suffering from two disabilities, one of which was attributable to or aggravated by service and the other not so attributable or aggravated, pension was awarded in respect of that disability which was connected, either wholly or in part, with military service. In the case of a man who suffered from a disability prior to enlistment, and on or after discharge was found to be suffering from the same disability in an aggravated form, the increase in disablement was considered attributable to military service, and pension was assessed on the total extent of the disability.

Army Officers in India.—In answer to Lieut.-Colonel Brickley, on March 1st, Mr. Churchill said there were in India forty-one officers of the Royal Army Medical Corps whose tour of service had expired. Twenty-four regular officers were under orders for India, and would be employed for the relief of tour-expired officers and towards completing the permanent establishment of the Royal Army Medical Corps in India.

Territorial and Special Reserve Officers R.A.M.C. in Mesopotamia.—Sir Watson Cheyne asked, on March 2nd, whether the War Secretary was aware of the grave discontent among the Special Reserve and Territorial Force officers of the Royal Army Medical Corps in Mesopotamia, owing to the fact that they could not be relieved, some having spent two or even three hot seasons in Mesopotamia without leave, and especially in view of the prospect of having to spend another hot season, and whether steps would be taken to give relief to them. Mr. Churchill replied that some of these officers, in common with the regular Royal Army Medical Corps and the Indian Medical Service, had leave due to them. This was a matter for the local military authorities, but the granting of leave necessarily interfered with the release of officers eligible for demobilization. Regular officers of the Royal Army Medical Corps were being sent out as they became available to replace officers of the Special Reserve and Territorial Force where demobilization had been applied for.

Lunacy Statistics.—Major Baird (Under-Secretary to the Home Office) on March 1st informed Major Wedgwood that on January 1st, 1920, there were in public or private lunatic asylums in England and Wales 96,344 patients (42,294 males and 54,050 females). The total included 3,739 ex-service men classified as "service" patients, and a small number of ex-service men, whose classification as "service" patients the Ministry of Pensions had found themselves unable to sanction, or whose classification as such was pending. There were on the same date 270 persons (males 108, females 162) voluntary boarders in private asylums, but none temporarily detained. Dr. Addison, in reply to Mr. Hurd on March 1st, said there was no legal authority under which boards of guardians should be repaid at least one-half of the actual cost to them of every pauper lunatic maintained in a county asylum. Dr. Addison added, in reply to another question, that in view of contemplated Poor Law reform legislation could not now be undertaken.

The Administration of the King's Fund.—The Minister of Pensions, on February 26th, stated, in answer to Captain Coote, that the total number of grants made from the King's Fund was 36,303 and the payments amounted to £1,137,459 0s. 3d.

The cost of administration did not fall on the fund, but was borne as part of the general administrative expenses of the Pensions Minister. It was estimated at about £35,000, exclusive of an additional administrative expenditure by Local Committees.

Treatment of Syphilis.—On February 24th Mr. Waterson asked a question with regard to the deaths recorded by Colonel L. W. Harrison in his paper on army medical experience of venereal disease during the war, contributed to the Special Clinical and Scientific Meeting of the British Medical Association in London last April, and published in the *Proceedings* of that meeting. (It appeared that there had been 36 deaths among 39,377 cases treated.) Dr. Addison said that a special committee had been appointed by the Medical Research Committee, and that part of its reference was to inquire into the toxic effects of arsenobenzol compounds. Mr. Waterson then made an inquiry with regard to the report of the German Commission, the substance of which we published some time ago. Dr. Addison said that he intended to procure the report, and would consider whether a translation should be made.

Hospitality for Austrian Destitute Orphans.—The Prime Minister, in answer to Mr. Ormsby-Gore on February 26th, stated that a scheme had been submitted by responsible persons to the Home Secretary for bringing a number of Austrian children to the United Kingdom, where they could be placed in suitable surroundings. Subject to the Ministry of Health being satisfied that the proper precautions would be taken to safeguard the health of the people in our own country, the scheme had been approved, and the details were now being worked out in consultation between the Home Office and the Ministry of Health. He understood that large numbers of Austrian children had been sent to other countries, but he had no information as to the arrangements made for their reception. Asked by Sir Clement Kinloch-Cooke if care would be taken to see that there was enough milk to go round, Mr. Lloyd George said that was a consideration that the Health Ministry would take into account.

Insanitary Conditions at Theatres.—In answer to Mr. Jesson, on February 26th, Dr. Addison said he had received communications from the Actors' Association complaining of insanitary conditions in some provincial theatres, and he had told them that if they failed to get such conditions remedied by the local authorities of the district, and would bring the case before him, he would consider whether he could take it up with the local authority.

The Taxation of Invalid Chairs (Motor Driven).—Mr. Maclean asked, on February 26th, whether the revenue authorities were levying a tax on all disabled persons who attached a motor to their invalid chair; and whether, in view of the number of disabled soldiers compelled to use this method of conveyance, the Chancellor of the Exchequer could see his way to exempt them from taxation. Mr. Chamberlain subsequently replied that mechanically-propelled invalid chairs, if used upon the public highway, were liable to motor car licence duty. The whole question of the taxation of mechanically-propelled vehicles was under the consideration of a departmental committee appointed by the Minister of Transport, and a particular point raised must await the report of the committee.

Drunkenness Statistics.—Mr. Shortt, on March 1st, gave the following figures for England and Wales:

	1913.	1914.	1919.
England ...	177,971	174,451	54,947
Wales ...	—	—	2,964

The figures for Greater London during the month of January for seven years were:

January, 1914 ...	5,066	January, 1919 ...	1,037
January, 1918 ...	1,015	January, 1920 ...	2,762

Small-pox in Germany.—At the instance of Mr. Lunn, Dr. Addison, on March 1st, gave the following information as to small-pox in Germany: There was an epidemic during 1917 comprising some 3,000 cases, the origin of which was traced to infection brought into Germany by Russian prisoners. During 1918 cases continued to occur, and numbered (so far as his information went) to about 300. In December of that year there was a recrudescence of the disease, and down to the end of 1919 about 4,344 cases had been reported. Of these some 800 occurred at Dresden and about 164 in Danzig. Amongst the other places at which small-pox was prevalent in 1919 were Oppeln (311 cases), Königsberg (88), Stettin (24), Breslau (58), Berlin (25), and Cassel (34), but the number of deaths had not been reported. In 1917 and 1918 there were many foreigners in Germany—prisoners, refugees, and others, including Russians, Poles, Austrians, Italians, Belgians, and French—and it was more than probable that many of these foreigners were unprotected by vaccination. Separate statistics as to Germans and foreigners attacked were not available.

THE book on *The Chamberlens and the Midwifery Forceps*, by the late Dr. Aveling, published in 1881, has become rare. Mr. Alban Doran has recently presented to the Library of the Royal College of Surgeons of England a copy in memory of the late Charles Louis Taylor, Assistant Editor of the BRITISH MEDICAL JOURNAL, from whom he had received it as a gift some years ago.

STATE GRANTS FOR SCIENTIFIC INVESTIGATION.

DEPUTATION TO THE LORD PRESIDENT.

A JOINT deputation from the British Medical Association and the British Science Guild waited upon the Right Hon. A. J. Balfour, Lord President of the Council, at the offices of the Privy Council on March 2nd, to place before him certain considerations with regard to State awards for scientific research. Sir WATSON CHEYNE, Bt., M.P., introduced the deputation, which included Sir Clifford Allbutt, K.C.B. (President of the British Medical Association), Sir Ronald Ross, K.C.B., Professor Benjamin Moore, F.R.S., Mr. E. B. Turner, F.R.C.S., Sir Richard Gregory, F.R.A.S., Dr. R. T. Leiper, Lieut.-Colonel W. A. J. O'Meara, M.Inst.C.E., Dr. D. Sommerville, and Dr. G. C. Anderson, Deputy Medical Secretary of the British Medical Association. The following members of Parliament were present: Sir Philip Magnus, Dr. Nathan Raw, and Dr. W. E. Elliot. Mr. Balfour was accompanied by Sir George Newman, K.C.B., M.D.

Sir WATSON CHEYNE said that the object of the deputation was to bring forward the question of State awards for scientific work after such work had been done. Scientific workers were assisted by scholarships and so forth while doing their work, but after it was done there was at present no provision for them, although, excited by the interest of their investigation, they had often neglected to make any provision for themselves. Moreover, it was the tradition that a scientific man should immediately publish his discoveries, making no attempt to conceal any knowledge in order to secure personal advantage.

Sir CLIFFORD ALLBUTT referred in particular to the conditions under which medical men worked. Those conditions were governed by the very high standard of ethics maintained in the profession. No medical man could have honour in the profession if he descended to any kind of direct or indirect advertisement. No medical man was permitted to take out a patent. The large hospitals no doubt gave a field to the clinical worker which might offer considerable indirect reward, but that did not apply to the research worker, who was rather hidden behind his work. He knew men of very high academic attainments working enthusiastically at research who were declining lucrative appointments in order that they might finish—which they never did, of course—their experimental investigations. It was from such disinterested research—not utilitarian nor aimed at sensational or immediate results—that the greatest benefits accrued to mankind. He himself was chairman for some years of the Scientific Relief Committee of the Royal Society. Mr. Balfour would perhaps be surprised if he were to tell him privately the names of the very distinguished scientists who, or whose representatives, came forward to ask for grants in order to tide over a time of great difficulty. It was desirable to attract a great many more potential workers. The field of comparative pathology, for example, lay untilled; at present it offered no reward, direct or indirect. It would be said that the Treasury must be careful about expenditure, but he feared that the expenditure under this head would not be very great. He was afraid that the highest kind of intellectual research was rather scarce, and consequently the demands for grants would not be so heavy as might be anticipated.

Sir RICHARD GREGORY said that in medicine the great experimental work was rarely done by the successful practitioner or consultant. It was carried out in the research laboratories by men who occupied posts carrying only moderate salaries. There was the further consideration that the highest type of worker—the genius—in medicine or any other department of science was precisely the man who was not amenable to control—the free worker who followed up a clue in some department of knowledge to the willing sacrifice of himself. There should be a fund of some kind for making suitable awards, to be considered as payment for results achieved, and not as grants for favours to come. The scientific worker (he added), unlike the worker in literature or art, could not dispose of his achievement to the public for profit.

MR. BALFOUR'S REPLY.

Mr. BALFOUR said that he had always been an advocate—even a vehement advocate—of two things which, until quite recent years, the British public had been very slow to realize: the one, that the material progress of mankind depended upon the applications of science, and the other, that there must be pure science before these could be applied. While that was still worth saying even now on the public platform, it was a commonplace to everybody sitting around that table. They were all agreed that the State—which, after all, represented the people of the country and could not be in advance of them by more than a certain amount at any given time—had been backward in the past in its support of science. The only difference among them, if there was any difference, was as to the way in which the stimulus could best be given to those brains in the country best qualified to further scientific research and the subsequent industrial research based upon it. The view of the deputation, as he understood, was that when a man whose opportunities and genius permitted him to work at research had turned out some brilliant discovery the State should give him a reward.

Everybody must feel that the straits to which many distinguished men of science were reduced after devoting their whole lives to research without any desire for pecuniary reward were rather pathetic, and in many cases discreditable. For his own part he thought it most desirable that some remedy should be found. But he wondered how many such people would get the reward under the scheme which in rough outline had been laid before him that day. He thought the truth was that in the case of the very great discoveries, while it was often possible to go back to the individual who started the train which led to the great result, he himself had not directly produced that result. Faraday did not discover the telephone or wireless telegraphy or a practical method of electric lighting; what Faraday did was to make all those things possible, to lay the scientific basis of them. It was not easy to see how the reward was always or even commonly to be got into the right pocket. The amazing progress which medical science had recently made in stamping out certain forms of zymotic disease was, indeed, a wonderful triumph; but it was very hard to pick out the individuals to whom that triumph was due. If he might put himself in the unfortunate position of a Prime Minister, the difficulty of saying that A. should have the money which was available, or that B. should have it, would be very great, even though he took the best advice obtainable. There would be certain dramatic cases in which the whole public would be behind the Prime Minister in apportioning a particular reward, and yet when the historian came to look back upon the long labours which had made the triumph possible, might not he have to say that the genius to whose intuition and inspiration the achievement was really due had died unrewarded? Did anybody think that Maxwell, for instance, would ever have come in for any share of this parliamentary grant, seeing that his discoveries were such as very few were capable of comprehending in the form in which he gave them to the world? Yet his discoveries lay at the root of much of the subsequent progress in physical science. Sir Clifford Allbutt had pointed out that this was not asking very much from the taxpayer, because the number of people who would actually get the reward was so small. But, looked at from the point of view of the encouragement of research, that meant that a young man, going into research, and surveying the possibilities of reward, would find he had the chance only of one in ten thousand. He might contribute himself as a collaborator to the great discovery for which somebody else, quite properly, got the chief credit. The collaborator, on this plan, got nothing, yet without the collaboration of people not in the first rank could progress be made? Germany had never excelled this country—he would like to use a stronger phrase, but he would be nationally modest—in the production of those genuises who started original discovery; but it had surpassed this country in the organization of men not of the front rank whom it had brought together in co-operation towards a common end. He did not see how the investigations of a body of co-operative workers could be stimulated by rewarding a few isolated individuals. At any rate, he saw difficulties. Was there not more to be said for some attempt to stimulate research by improving the position of the researchers while they were doing their work? He was told the other day that there were people carrying on research work at Cambridge for a smaller remuneration than the town council of Cambridge paid to its unskilled employees. This showed that there was still a great deal to be done in the way of aiding research while it was proceeding. He agreed entirely with Sir Richard Gregory that while the State might aid research it would only destroy research if it were resolved to control it. The best men would not be controlled. The State was incapable of forming a judgement on the merits of an abstruse physical or physiological inquiry. That must be left to the genius of the men themselves. But he hoped it did not follow that it was quite impossible to combine with that independence of the worker some better reward for the work he was doing. He was afraid, however, that if the Treasury were represented at that assembly, it would say it preferred the original scheme laid before him by Sir Watson Cheyne. The framing of any such ideal scheme would require a great deal of thought.

In conclusion, Mr. Balfour said that while he had spoken for himself alone, he was also there in some sense as representing the Prime Minister, and he would like to add that there was no man living who had shown a greater sympathy with scientific development than Mr. Lloyd George, who had been responsible for some of the greatest advances which had been made in the direction of State aid for scientific and medical research. When he reported to him what had passed that day, they might be sure the Prime Minister would give it the most sympathetic consideration. He was far from laying it down that the State should not on occasion imitate our forefathers in the case of Jenner and offer a pecuniary reward to some great man of science whose services had been exceptional and whose achievements were obviously his own. But he would not wish that to be a part of the regular system of dealing with discovery in this country. He hoped that what the Government had already done would be found to be far greater in its ultimate results than perhaps the public at large, or even men of science, as yet had realized. He feared that they had not been supported as they might have been by men of great wealth in this country. There had been admirable exceptions, but either we had fewer millionaires than the Americans or we were less lucky in them, for there was no doubt that private individuals across the Atlantic had contributed on a scale which did justice to their generosity and was likely to produce great results for the whole world. Probably it was out of the question to hope completely to emulate them, but he did not despair that among the wealthy men in this country some might be found, in addition to those who had already shown themselves generous benefactors, who would do much to aid and stimulate that research into the laws of nature and that application of those laws upon which our main hopes for the amelioration of the lot of the human race must depend.

Sir RONALD ROSS said, with regard to the difficulty of selecting men for these prizes, that the proposal of the deputation was that the £20,000 suggested should be divided into ten pensions of £1,000 each and twenty pensions of £500 each, or, of course, it could be further subdivided. The selection of participants was simply a matter of thorough examination of details. The Royal Society gave, not pensions but honours, and the most careful examination was made. The Nobel prizes also were given with very great care, a register being kept even more elaborate than that of the Royal Society. He suggested that a committee be appointed, preferably consisting of the medical members of the House of Commons, to draw up the best possible scheme for giving these prizes.

Mr. BALFOUR said that he took it that what was proposed was in the nature of an addition to the Civil List Fund. The deputation was asking the Government to take a course with regard to the medical profession; but it could not stop at the medical profession. The provision must cover all branches of scientific research. Sir RONALD ROSS agreed.

Sir WATSON CHEYNE having thanked Mr. Balfour, the deputation withdrew.

England and Wales.

DISTRICT NURSING IN LONDON.

THE annual meeting of the Central Council for District Nursing in London was held on February 26th, Sir William J. Collins presiding. The fifth annual report (summarized in our last issue) was adopted on the motion of Mr. E. B. Turner, chairman of the Executive Committee. In reply to a question by the Rev. G. Bell Doughty with regard to the sum of £10,000 entrusted to the Council by the British Red Cross Society, Mr. Turner said that the distribution was still under consideration. The decision would be announced at the earliest possible moment. Replying to a further question regarding the grant of £500 from the London Insurance Committee, Mr. Turner said that it was hoped it was only a beginning, and that approved societies also would help. The nurses controlled by the various associations affiliated with the Council nursed insured persons in the same way as others. As the funds at disposal increased it was hoped to add to the staff of nurses and to improve the general service. The meeting resolved to make arrangements with the District Nursing Association for securing home nursing services for insured persons in all parts of London, and to continue the negotiations with a view of obtaining contributions from approved societies for the nursing of their members. The meeting approved the decision of the Executive Committee informing district nursing associations that a condition of a grant would be that the minimum salary of a resident nurse should be not less than £50 clear, and of a non-resident nurse not less than £50, with a reasonable allowance for board and lodging. It was reported that an informal conference on maternity nursing had been held with the medical officers of health of the metropolitan boroughs. The matter was inextricably connected with the provision of midwives. The fact that medical practitioners were abandoning midwifery work except as consultants made the demand for nurses for cases attended by doctors smaller. A fully-trained nurse would not work under a midwife with six months' training, yet the midwife was frequently unable to nurse all her patients adequately. Dr. D. S. Roxburgh suggested that the attention of the Minister of Health should be drawn to the serious result of recent legislation in diminishing the attendance of medical practitioners in midwifery cases. The Chairman promised a further report on the matter, also on the adequacy and efficiency of the district nursing provision in London, and on the desirability of extending the work of the Central Council beyond the county area.

EARLY CARE OF MENTAL CASES IN SOUTH WALES.

The movement to establish a clinic in psychiatry in Cardiff is making progress. The Committee which has the matter in hand contains representatives of the Cardiff City Mental Hospital at Whitchurch and the University College of South Wales; it recently asked the Board of Management of King Edward VII Hospital (formerly known as the Cardiff Infirmary) to allow the out-patient department of the clinic to be instituted at the hospital as part of the present out-patient department. The Medical Board recommended that the request should be granted, and the Board of Management has now unanimously agreed. The effect of this will be that as soon as the necessary arrangements have been made, cases of mental disorder in their early phases will receive advice and treatment in the out-patient department of King Edward VII Hospital. When in due course an in-patient psychiatric clinic is established, it is intended that the out-patient department shall still remain at the hospital. Cardiff is the centre for a very large part of South Wales, including many of the mining districts, so that the advantage of this new out-patient clinic will be enjoyed by a large population. The progress of the movement will be watched with interest by all who know the importance of early treatment of mental disorder, and realize that the arrangements at present existing are inadequate. We have no doubt that the new out-patient clinic will eventually, and we hope before long, lead to the establishment of an indoor clinic.

MEDICAL PRACTITIONERS' FEES IN MIDWIVES' CASES.

The Midwives Acts Committee of the London County Council has reported its general agreement with the amended scale of fees to medical practitioners called in by midwives to assist in cases of emergency, as given in the circular letter which the chief medical officer of the Ministry of Health has addressed to the local supervising authorities under the Midwives Acts. The principal representations which the Ministry of Health has transmitted to these bodies for consideration are (1) that it is undesirable to distinguish between operative and other confinements; (2) that a special fee should be prescribed for certain operations usually performed after the birth of the child for which the fees for ordinary subsequent visits do not afford a sufficient remuneration; and (3) that in view of the rise in prices the fee for visits should be increased. The Midwives Acts Committee, however, does not agree with the proposal in the circular letter to fix the fee for all attendances at parturition at a flat rate of £2 2s. In some cases this would not be adequate; in others it would be comparatively high. The Committee proposed to ask the Ministry to allow the scale in this respect to remain as at present, but that local supervising authorities should have a discretionary power to pay a higher fee in operative or difficult cases.

Scotland.

THE EDINBURGH BRANCH.

THE winter clinical meeting of the Edinburgh and some other Scottish Branches of the British Medical Association was held in the Royal Infirmary in Edinburgh on February 27th, and proved a conspicuous success. The museum, in the pathological department, was visited by a great many members during the day. From 11 a.m. until 3.15 p.m. a number of excellent demonstrations, arranged by Dr. John Eason, were given in the wards and special departments by Mr. D. Lees, Dr. William Sym, Dr. Dawson Turner, Dr. Hope Fowler, Dr. A. McKendrick, Dr. Norman Walker, and Professor Meakins. At the clinical meeting in the afternoon the large surgical theatre was almost completely filled. Lieut.-Colonel John Keay, President of the Branch, was in the chair, and a number of interesting cases were shown. At 5 o'clock Dr. Alexander Blackhall-Morison gave an address on "The passive mechanical factor in heart disease: its influence and management," which we hope to print in a subsequent issue. A cordial vote of thanks and appreciation of the lecture was passed, on the motion of Dr. James Ritchie, a former president of the Branch. In the evening a dinner was held in the Royal College of Physicians, with Colonel Keay in the chair. At this enjoyable function fifty-two were present, including eight guests, among them being Dr. Blackhall-Morison, the Scottish Medical Secretary (Dr. J. R. Drever), the Chairman of the Scottish Committee, and representatives from other Branches in Scotland. The toast of the Imperial Forces was proposed by Dr. Playfair, and responded to by Surgeon Lieutenant-Commander Wilkie, R.N.V.R., and Colonel Wade, A.M.S. The toast of the British Medical Association was proposed by Dr. George Mackay, President of the Royal College of Surgeons, Edinburgh, and acknowledged by Dr. Drever. The health of the guests was submitted by the President, and responded to by Dr. Blackhall-Morison and Dr. Matheson, President of the Royal Medical Society. The President's health was proposed by Dr. G. M. Robertson, professor of mental diseases in the University. Earlier in the proceedings Dr. A. H. F. Barbour, Vice-President of the Royal College of Physicians, in the unavoidable absence of the President, expressed the kindly welcome of the College to the Edinburgh Branch, and on the motion of Mr. F. M. Caird, emeritus professor of surgery, a former president of the Branch, a cordial vote of thanks was passed to the Royal College of Physicians for hospitably placing its hall at their disposal for the dinner. Many appreciative letters on the success of the whole day's programme have been received by Dr. John Stevens, honorary secretary of the Edinburgh Branch.

GRADUATE COURSES, EDINBURGH.

Short advanced courses for graduates will be held in connexion with the University and Royal Colleges in Edinburgh during the summer and autumn terms and the summer vacation if a sufficient number of graduates enter for the several courses. In certain instances a maximum limit will also be imposed. The courses will be conducted by teams of teachers and the following subjects will be included, namely: Clinical therapeutics, tuberculosis, diseases of the blood, diseases of the renal system, diseases of the alimentary system, diseases of the circulatory system, diseases of the ductless glands, abdominal surgery, genito-urinary surgery, surgery of children, clinical gynaecology and c inical obstetrics; diseases of the larynx, ear, and nose; ophthalmoscopy and errors of refraction, venereal diseases, advanced bacteriology, advanced medical anatomy, advan ed surgical anatomy, child welfare. Arrangements will also be made, if necessary, for special instruction in antenatal maternity work, psych atry, and dermatology. Full particulars may be had on application to the Honorary Secretary, Post Graduate Courses in Medicine, University New Buildings, Edinburgh.

Correspondence.

ADENOIDS, NASAL CATARRH, AND INFLUENZA.

SIR,—Recent discussion in your columns as to adenoids and nasal catarrh seems to have taken one of those humorous turns which occasionally brighten the austerity of science, for it has tended to resolve itself into the question of to blow or not to blow the nose, and if the answer be in the affirmative, whether or not the drill master be required. Some laryngologists remember the suggestion made years ago that adenoids could be cured by respiratory exercises. Of course most of us knew that this was impossible, but we realized that where the amount of lymphoid tissue was small training in nasal resp ration might turn the balance in doubtful cases and make operation unnecessary. The immediate result of the suggestion was, however, that breathing exercises began to be taught and the teachers developed systems. Now it followed that the simple became complex, and all sorts of unnecessary movements were introduced, this being required on behalf of the systems. As a matter of fact, breathing exercises are quite simple, but as we do not desire to produce good tone in one set of muscles only, they should form part of a course of physical culture; the instructor should at the same time be directed to devote special attention to nasal respiration.

Untold harm may be done if, owing to recent publications as to the efficacy of any form of breathing exercise or medicinal treatment, well marked adenoids which cause symptoms are not removed. We all realize that those symptoms vary from time to time, and this may have misled the more sanguine believers in nasal drill and medicinal treatment.

The striking letter of Dr. Wilkinson in your issue of February 28th touches a question of great interest. We hear and have heard a great deal about vaccines both for colds and influenza, but it has always appeared to me that the proof of their efficacy leaves much to be desired. We all know what is meant by influenza from one point of view, but to prove that one patient has a feverish catarrh and that another has influenza seems wellnigh impossible. I have taken more than a purely academic interest in this matter, for, after some years of leading an open-air life, I went back to hospital work during the war. In one year I suffered from three attacks, each presenting the features of influenza. One of my medical friends suggested the use of a vaccine, but I argued that probably immunity might have ensued from these attacks. During the remainder of my period of work I was not again affected, but had I been inoculated my case might have been quoted in favour of this method of prophylactic treatment.

The question of the definite diagnosis of influenza seems to present great difficulties, and as our confrères are but human may there not be a tendency to catalogue indefinite acute cases as influenza in the same way as the word "gout" is by some employed to embrace many chronic troubles? Years ago, when Pfeiffer's bacillus seemed to have an assured position as the etiological factor, I was confronted by this difficulty of diagnosis when I desired to make some observations on the effects of influenza.—I am, etc.,

Harrogate, March 1st. P. MCBRIDE.

PUBLIC HEALTH VERSUS THE STATE.

SIR,—Dr. Baskett and I are agreed that poverty due to low wages was the chief cause of tuberculosis. We also are both of opinion that free trade was a main cause in the diminution of poverty and cheapening of food which produced the remarkable reduction in the death-rate. But while Dr. Baskett fixes his attention on this one factor, I cannot forget the numerous other causes—more or less independent of wages—which produce consumption. Take infection. Sir A. Newsholme has shown the close connexion between isolation in Poor Law infirmaries and the diminution of this disease, and this was due to paternal legislation and not to *laisser faire*. Then there are alcoholism, housing, workshop conditions, smoke, etc., which cannot be remedied by increased wages alone; they can only be dealt with by paternal legislation.

But Dr. Baskett is far from being an anarchist as one m ght have feared from his choice of watchword. He approves of Truck Acts and other legislation which does not increase taxation. He also, I take it, approves of voluntary insurance by friendly societies. Granted that such societies can do for 1d. what the State charges 1½d. for, does not the 1d. diminish real wages, even if to a lesser extent, and is it no compensation to the masses that for the extra ½d. the improvident are compelled to be provident?

Surely Dr. Baskett does not wish to abolish municipal isolation hospitals, public health departments, notification of disease, municipal sewers, water supplies, etc. But there are other means of insurance against disease, equally costly, and they must lower real wages just as much as the Insurance Act. Granted the Act is very imperfect and wants amending; but once admit—and I am sure Dr. Baskett admits—the brotherhood of man and the co-operative motto, "Each for all and all for each," I utterly fail to see that an Insurance Act is necessarily wrong in principle.

And do not Trusts increase the cost of living? Would Dr. Baskett apply *laisser faire* to these?

I am, Sir, appalled by the complexity of the question which Dr. Baskett finds so simple—"Oh, what a dusty answer gets the soul when hot for certainties in this our life." Dr. Baskett has made out an ingenious case for his theory, but I submit that it is not as simple as he would have it. He is too hot for certainties.—I am, etc.,

Worthing, March 2nd. SIDNEY DAVIES.

MALE STERILITY.

SIR,—In writing the brief article that appeared in your issue of January 3rd, under the heading of "Sterility in the Male," I little anticipated any danger of being drawn into the dust and turmoil of the battle at that time being waged in your correspondence columns over the subject of prophylaxis and venereal disease. But apparently the writers of the letter that appeared in your number of February 21st have discovered grave moral issues in my statement that prolonged and absolute continence has been said to produce a *temporary* azoöspermia or oligospermia. Surely my critics have overlooked the word in italics, for I cannot believe that the fear of incurring a temporary azoöspermia or oligospermia is likely to drive continent males from the paths of rectitude. However, lest such should happen, I would hasten to add that the evidence in favour of such a disability is very slender, for opportunities of proving or disproving the statement are naturally rare.

My article being on the subject of sterility in the male, and not on the relation of continence to health, I do not propose to be drawn into a discussion on the advantages and disadvantages of leading a virtuous life. Apologizing for trespassing on your valuable space, I am, etc.,

KENNETH WALKER, F.R.C.S.,
Medical Officer in charge of V.D. Department,
London, March 1st. St. Bartholomew's Hospital.

THE TERRITORIAL FORCE.

SIR,—I was pleased to see "T.F." in the BRITISH MEDICAL JOURNAL, February 28th, p. 309, speaking out. While working in the weary Macedonian wilderness it was always a consolation to be assured in the belated BRITISH MEDICAL JOURNAL that remuneration to T.F.'s would in the end be righted by an increased gratuity. Alas! for hopes. It was disgusting enough there to see temporary medical officers leaving again and again "on leave," while the T.F. stuck year after weary year; never mind if paid less than temporaries and conscripts for his patriotism. The former cannot be undone, the latter can. I think it is certainly up to the able-bodied British Medical Association to organize all war serving T.F.'s to strike against any other service save "conscript" (other medicals joining issue), the minimum demands being that every T.F. officer should have back pay for every day of service to bring his pay equal to that of equal temporary rank. Calculation is easy enough—for example, every T.F. captain received 15s. 6d. a day and 3s. 6d. field allowance while at home some of the time and extra allowances while abroad. These are recorded. The difference to bring it up to an average of 24s. a day should be paid. There never was any lack of patriotism on the part of medical men and there is no need to fear any in the future, on equal footing of payment, in time of England's distress. Personally I intend to resign my commission as soon as may be and refuse to have anything whatever to do with any Territorial service until I am paid for past services. It will not avail much, however, unless all do so. After four and a quarter years' service the "extra gratuity" held out to me (as a hope) would, if matured, have been a merciful boon, and to many others, to retrieve scattered fortune. Personally it was tragic (after comparative pre-war affluence) to commence over again almost beggared. I have always received from the Editor of the BRITISH MEDICAL JOURNAL courteous replies and helpful suggestions on whatever matter I have asked his help, and am grateful to his institution. When demobilized in March, 1919, and only beloved ones a preventive to considered self-effacement, the Editor of the BRITISH MEDICAL JOURNAL suggested applying to war benevolent funds. I did so. I cannot reconcile his article, "Hard Hit," in the same issue as "T.F.'s" letter, with the verdict in my case that "no grant could be made." Damn all charities! Pay the T.F.'s what they have earned first! Meanwhile my own right arm and own "left" brain, with still an overdraft of £450, are, I rejoice, slowly making good.—I am, etc.,

"HARD HIT."

February 28th.

SIR,—While sympathizing with the bitterness of "T. F." (February 28th, p. 309), I venture to demur to his "advice to any young doctor who thinks of taking a commission in the Territorial Force, that it will pay him better to wait until he is conscripted." Nobody is more alive than I am to the inequitable treatment meted out to the Territorial during the war; probably in hard cash it paid better to be a conscript. But the consciousness that he did freely his duty to his country should go far to compensate the Territorial; while the treatment meted out to him by a soulless Government department should make him determined that the duty shall be carried out in future under better conditions.

The small Territorial army contemplated by the Government will require only a very small minority of practitioners as medical officers. Consequently the Government will again be in the position in any future emergency, of being able—or compelled—to offer more favourable terms to civilians, unless a Conscription Act is introduced at the beginning of the emergency. But Conscription Acts appear to be so distasteful that few Governments are likely to take the risk of conscription until driven to do so. We shall be wise, therefore, if we take forthwith such measures as are possible to prevent a repetition of the inequitable conditions at the beginning of the war without discouraging the soul of patriotism by advising men to refrain from joining the Territorial Army. It is probable that the Territorial section now added to the War Office will have some effect in this direction. But I have always maintained that representation of particular interests in a Government Department is not in itself sufficient. I believe it to be essential that outside the Department there should be a strong voluntary body which shall weigh the views of the various parties concerned; shall watch the proceedings of the Department; shall give friendly advice when necessary; but shall be prepared to act firmly and forcibly when need arises.

Such a body should be found in the Naval and Military Committee of the British Medical Association, which has already taken up questions connected with the reconstruction of the Territorial Army, and contains men capable of speaking on the views of the regular, the territorial, and of the civil profession. With such a body in existence it appears to me that we may advise all young doctors whose position allows it, and for whom room can be found, to join the new Territorial Army.—I am, etc.,

London, W., March 1st. CHAS. BUTTAR.

PROPOSED MEMORIAL TO SIR VICTOR HORSLEY.

SIR,—As an old colleague and friend of Sir Victor Horsley, the most scientific surgeon of our day, I heartily support the proposal of Mr. Domville.

> A combination, and a form indeed,
> . . . . . .
> To give the world assurance of a man.
>
> He was a man; take him for all in all
> I shall not look upon his like again.

—I am, etc.,

London, W., Feb. 23rd. W. CAMAC WILKINSON.

Obituary.

D. J. WILLIAMS, F.R.C.S.,

Llanelly.

WE announce with deep regret, a regret which will be felt throughout the profession in South Wales, the death on February 27th of Dr. D. J. Williams of Llanelly. He was a man of marked character and unusual ability, who, almost in spite of himself, won the respect and affection of a large circle of friends within and without the profession. A strong Welsh patriot, he did not display all the characteristics of his race. Reticent by temperament, he took little part in public life, but his high standard of professional conduct and attainment was evident, though seldom specifically expressed. When he was President of the South Wales and Monmouthshire Branch of the British Medical Association in 1909 he gave an address, the purpose of which was allegorically shown in the title, "Hercules and the Wagoner." In it he gave utterance to the conviction of his life that the profession of medicine was something greater than the passing show of politics and must work out its own salvation through the increase of its efficiency in the prevention and cure of disease. In this way only, he believed, could it surely reach and keep the position of influence in the community which in the best interests of all it should hold.

His life had few incidents. He was born sixty-eight years ago, received his early education at Llandovery College, and later entered University College, London, where he early showed a disposition to devote himself to science; he was a good histologist and held the post of demonstrator of physiology. Shortly after taking the diploma of M.R.C.S. in 1877 circumstances rendered it necessary for him to go immediately into practice, and he settled at Llanelly, where he already had some friends. There he remained for the rest of his life, going through, at first, all the hard work of a young medical man in a growing industrial town. Success encouraged him to take the diploma of F.R.C.S. in 1894, and afterwards he did much surgical work at the Llanelly Hospital. During his time Llanelly became a chief centre of the tin plate trade, and works and factories rapidly multiplied. It speaks well for his surgical acumen and the independence of his mind that he was among the first to appreciate the genius and apply the methods of Hugh Owen Thomas, the founder of the Liverpool School of Orthopaedics. In his later years failing health limited his activities and he gradually curtailed his practice, but his opinion continued to be sought far and wide throughout the area of which Llanelly is the centre.

He was a loyal member of the British Medical Association, and represented Wales on the Central Council for several years at the time when the Insurance Act caused

so much anxious discussion. The whole conception of that measure was distasteful to him, running counter as it did to h s belief that the profession must remain master in its own house if it was to do its duty to the people. He never wavered in that belief and never worked under the Act.

His boyhood was spent in a remote Welsh valley with a trout stream at the bottom of the garth. His fishing hand never lost its cunning, and down to a few years ago he could charm trout to his fly on a day when others, accounted good fishermen, would go home with empty creels. His other recreation was literature; he was well read in Welsh, and his capacious memory held vast stores of the best of the Eng ish poets.

He was married but leaves no children. To his wife, the constant comrade of many years, the sympathy of many friends goes out.

DR. ROBERT J. BANNING, of Shoeburyness, who died on February 10th, was born in Liverpool in 1833. He received his medical education at the Liverpool Royal Infirmary, where he was a medallist and scholar, and at the Middlesex Hospital, taking the diploma of L.S.A. in 1854. He was a civil surgeon during the Crimean war, 1854–55, acted as surgeon on the Crimean transports, and saw fighting at Sebastopol. In 1857 he graduated M.D.St.Andrews, and in the following year took the diplomas of M.R.C.S., L.R.C.P. He began private practice at Gateshead in 1858, and subsequently removed to Shoeburyness, where he took great interest in local affairs, and held the post of medical referee under the Workmen's Compensation Act till May last. He was president of the West London Medico-Chirurgical Society in 1894–5.

Universities and Colleges.

UNIVERSITY OF OXFORD.

Compulsory Greek.

THE statute modifying the regulations with regard to the Responsions Examination in respect of Greek was passed in Convocation on March 2nd by 434 votes to 359. The effect is that Greek is no longer a compulsory subject, except for candidates for classical and theological honours.

Medical News.

THE next Oxford Ophthalmological Congress will be held on July 15th and 16th. On the first day a discussion on perimetric methods will be opened by Dr. Luther C. Peter of Philadelphia. The Doyne lecture on "The nerve paths and centres concerned with sight" will be given on July 16th by Mr. F. Richardson Cross. Further particulars can be obtained from the honorary secretary, Mr. Bernard Cridland, Salisbury House, Wolverhampton.

A REPORT made by the honorary secretaries to the first general meeting of the Fellowship of Medicine and Post-Graduate Medical Association shows that altogether 663 graduates took advantage of the emergency courses instituted by the Fellowship of Medicine at the beginning of 1919, and continued to the present time. Of those attending 221 belonged to the United Kingdom, 215 to the Dominions, 30 to India, 179 to the United States, and 18 to the various European countries, Japan, and South America. The hope is entertained that one of the existing medical schools in London may become a graduate medical school, but it would be premature to make any announcement on this subject.

THE first number of the *British Journal of Experimental Pathology* has been issued. It is a quarto of seventy pages. The first paper is contributed from the Institute of Physiology, University College, London, by Professor W. M. Bayliss, who gives a negative answer to the question, Is haemolyzed blood toxic? His experiments lead him to the conclusion that the serious results of the transfusion of incompatible blood are not to be ascribed to the haemolysis as such, but are rather an aspect of the action of foreign serum-protein analogous to that responsible for anaphylactic shock. Other papers are contributed by Dr. James McIntosh and W. A. M. Smart on the determination of the reaction of bacteriological culture media, by Dr. H. MacLean and O. L. V. de Wesselow on the testing of renal efficiency, and by Dr. Cramer on hyperpyrexial heatstroke, to which we refer elsewhere more at length. In an appendix are some notes on laboratory methods.

THE annual meeting of the North-East Essex Division of the British Medical Association will be held at the Red Lion Hotel, Colchester, on Thursday next at 2.30 p.m.

AT the meeting of the Hunterian Society in the School of Oriental Languages, Finsbury Circus, E.C., on Wednesday next, at 9 p.m., papers will be read by Dr. Howard Humphris on "Modern physiotherapy," and by Mr. J. E. H. Roberts on "The treatment of septic fingers."

THE proposal to admit women to be Fellows of the Royal College of Surgeons of Edinburgh after examination, on the same conditions and with the same privileges as men, has been accepted.

AT the court of governors of the London Hospital on March 3rd it was decided to ask in-patients to pay 10s. a week towards the cost of their food; the alternative was said to be closure of one-half of the wards. The chairman, Lord Knutsford, urged that the proceeds of the Amusements Tax should be allotted to the hospitals.

VISCOUNT SANDHURST has accepted the presidency of the annual congress of the Royal Institute of Public Health to be held in the University of Brussels from May 19th to May 24th. The scientific work of the congress will be conducted in seven sections. The Harben lectures of the Institute will be delivered during the congress by Professor Maurice Nicolle of Paris.

SIR WILLIAM HALE-WHITE will open a discussion on idiosyncrasy to drugs at the meeting of the West London Medico-Chirurgical Society to be held at the West London Hospital, Hammersmith, this day (Friday, March 5th) at 8.30 p.m.

THE Home Secretary has appointed Dr. William C. Sullivan, medical superintendent of the State Criminal Lunatic Asylum, Rampton, to the post of medical superintendent of Broadmoor Asylum, vacant by the retirement of Sir John Baker, M.D. Dr. Sullivan was scientific adviser to the Central Control Board (Liquor Traffic) throughout the period of its existence. He has been associated with the prison medical service for many years, and is known for his authoritative writings on alcoholism.

THE Mayor of Kensington, Dr. A. J. Rice-Oxley, C.B.E., and Mrs. Rice-Oxley, held a very successful mayoral reception recently in the Kensington Town Hall. The function was attended by Princess Louise Duchess of Argyll, and Princess Beatrice, and a large number of his colleagues were present to support the first medical mayor of the royal borough.

AT a conference of medical superintendents of sanatoriums, training colonies, and hospitals for tuberculosis held in London on February 23rd it was decided to form a new society which should have as its aim the advancement of the standards and the improvement of the methods of administration, diagnosis, and treatment of tuberculosis in residential institutions. Membership was limited to medical men and women the chief part of whose duties lies in the medical charge of residential institutions mainly devoted to the treatment of tuberculosis. "Associate members" may be elected from among those who formerly held such posts, and from present junior officers of such institutions. The annual subscription was fixed at 10s. 6d. for members and 5s. for associate members. It is intended to hold quarterly meetings, and to circulate full reports of the conclusions and recommendations of the society and its committees. Dr. Jane Walker was elected president and Dr. James Watt secretary and treasurer.

THE full programme of the meeting of the International Society of Surgery, to be held in Paris on July 19th–23rd, has been issued. In the discussion on the surgery of the heart and great vessels M. Tuffier (Paris) will deal with the heart, M. Sencert (Strasbourg) with the great vessels, and M. Jembraux (Montpellier) with the transfusion of blood. The discussion on treatment of tumours by *x* rays and radium will be opened by M. Régaud of Paris, and Dr. N. S. Finzi of London. The discussion on analysis of the blood and biological reactions in surgical affections will be opened by Drs. A. Depage and Goovaerts of Brussels. In opening the discussion on fractures of the thigh Major Maurice Sinclair, C.M.G., D.S.O., R.A.M.C., will be associated with M. Patel of Lyons, and in that on the prophylaxis and treatment of tetanus Colonel Cummins, C.B., C.M.G., A.M.S., will be associated with M. Donati of Modena. Professor W. W. Keen of Philadelphia will preside over the meeting, and the names of American contributors to the discussions will be announced later. Particulars are also published of the visit to the battlefields after the congress; it will be made partly by train, partly by motor car. The first place visited will be Rheims, and the party will separate at Ostend seven days later.

A DEATH from lethargic encephalitis is reported from Donington, Lincolnshire. The patient was a young man who had been ill for ten days.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2631, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Mediaeera, Westrand, London;* telephone, 2634, Gerrard.

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin, and of the Scottish Office, 6, Rutland Square, Edinburgh.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE "BRITISH MEDICAL JOURNAL."

THE charges for advertisements in the BRITISH MEDICAL JOURNAL will be increased at the end of March. The new charges will apply to all advertisements for insertion in the JOURNAL of April 3rd and subsequently. The rates will be as follows:

Six lines and under	7s. 6d.
Each additional line	1s. 3d.
Whole single column	£6 0s. 0d.
Whole page	£16 0s. 0d.

An average line contains six words.

From the issue of April 3rd the charge for announcements of births, marriages, and deaths will at the same time be increased to 7s. 6d.

QUERIES AND ANSWERS.

ERYSIPELAS.

"D. O. W." writes: I have read most of the treatments suggested for this ailment in the "Notes," but I have found that the administration of liq. ferri perchlor. mxx or mxxv thrice a day, or added to other appropriate ingredients in the mixture at the time and not already made in a stock mixture, always acts almost as a specific. Collodion applied locally, especially in facial erysipelas, helps. Even with temperatures of 103° and 104° I have never seen a fatal case.

LETTERS, NOTES, ETC.

THE TAGLIACOTIAN DOCTRINE.

COLONEL J. SMYTH, I.M.S. (Clifton, Bristol), writes: If Lieut.-Colonel Mills, R.A.M.C., will read the Puranas, especially the Brahmaraivarta and Matsya varaha, he will not only find the correct version of the account he gives of the manner in which Ganesha got an elephant's head, but several other different versions as well. One statement common to them all is that an elephant's head was substituted on Ganesha for his own head after it had been either burnt or cut off, and he remained quite happy ever after; these are the only points of any interest to us. The version of the story quoted by me I received from Mr. M. K. Lakshmana Chariar, a well known Brahman gentleman of Madras, and is doubtless as true as any of the others. According to the Puranas, the head is variously described as "clapped on" and "fixed" on.

WAR HONOURS.

"MAJOR R.A.M.C.(T.)" writes: The exclusion from any recognition is not confined to Territorial medical officers who served in the general hospitals at home. Similar treatment has been meted out to medical officers who were compelled (through no fault of their own) to serve in the field units of the Home army.

SURGICAL WAR HONOURS.

M.R.C.S. AND SURGICAL SPECIALIST" writes: My letter, published in the BRITISH MEDICAL JOURNAL, February 14th, p. 238, has been misunderstood. Recognition by the Government can only be by appointment to the Order of the British Empire—a compliment many of us have no desire to receive. My suggestion was that the Royal College of Surgeons of England should make a careful survey of the *surgical* work done by its members "and confer the higher diploma or some written appreciation." I fear the conservatism of the Council will prevent them entertaining such a proposal. Many members or "Stuff Gownmen" have done the work of "Silk" or Fellows. The latter body might be strengthened by electing to the higher diploma men who have proved themselves capable surgeons and good general practitioners. The man makes the value of the diploma; no diploma has ever created a capable man.

THE PRICE OF PETROL.

THE Board of Trade has issued the report of the subcommittee appointed to investigate costs, prices, and profits at all stages in respect of petrol, benzol, and other motor fuels. The report states that the present high prices for motor fuel are mainly due to the demand which is tending to outstrip the world's present supply, but that powerful financial interests are taking advantage of this tendency to raise prices. Practically all the sources of supply, transport, and distribution of petrol are under the influence of two groups—the Standard Oil and the Royal Dutch Shell—which control a large number of companies. Rather more than half the petrol imported in 1919 came from the United States. It is believed that the price, free on board, at New York should be about 6d. a gallon, and the price of 1s. 4.6d. a gallon actually charged is held to show a grossly excessive profit. It is suggested that the production, price, and distribution of motor fuel should engage the attention of the League of Nations or, that failing be made the subject of international agreement between the Governments of the principal importing nations. The importation from Persia was rather less than a fifth of that from the United States, but the British Government has a controlling interest in the Anglo-Persian Company, and when contracts by which it is bound expire two years hence it will be in the power of the British Government to give substantial protection to users of petrol in this country. The transport rates are considered to be at the present time double, or more than double, what they ought to be. The committee also considers that the profits made by the retail distributor are excessive. It finally advises that the retail price of No. 1 petrol should be fixed for the present at 2s. 10½d., and of No. 3 petrol at 2s. 8½d. a gallon. The price of benzol is regulated by agreement among the producers through the National Benzol Association, and is based on the price of petrol, not on the cost of production. It is recommended that the price of petrol or any spirit containing an admixture of benzol or of toluol should be fixed at 2s. 8d. a gallon, and that the export of benzol or toluol should be prohibited. The committee, however, recognizes that all these recommendations are merely palliative, and that the real remedy is to develop the production of power alcohol in this country or within the empire. The committee urges that its recommendations should immediately be put into force, and we note that the Automobile Association and Motor Union is very actively engaged in obtaining signatures to its petition asking the Prime Minister that strong Government action be taken.

PREVENTION OF VENEREAL DISEASE.

DR. FREDERICK H. PICKIN (London, S.W.) writes: The preacher of morality is a necessity, and plays the most important part in the campaign against venereal disease. But he only plays a part; he cannot succeed unaided. Venereal diseases are "dirt diseases" consequent upon immorality, and to prevent them all that is necessary, next to godliness, is cleanliness. If every brother who has had the misfortune to be tempted and fall would immediately afterwards thoroughly and repeatedly wash with plenty of soap and water and then perform the act of micturition venereal disease would rapidly become a negligible factor in the life of the community. Further, if every frail brother, in addition to using soap and water freely, would visit within twenty-four hours a doctor who understands these things and submit to an efficient irrigation, there would soon be no venereal disease to prevent.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 41, 44, 45, 46, 47, 48, and 49 of our advertisement columns, and advertisements as to partnerships, assistantships, and locum tenencies at pages 42, 43, and 44.

THE following appointments of certifying factory surgeons are vacant: Caldbeck (Cumberland), Hull (York, East Riding), Shaftesbury (Dorset).

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	6	0
Each additional line	0	0	9
Whole single column	4	0	0
Whole page	12	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.